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PATENT  
Docket No. SPLX.P0073

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*Mani Adeli*  
Mani Adeli

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Steven Teig, et al.

Serial No.: 10/066,160

Filing Date: 1/31/02

For: METHOD AND APPARATUS FOR  
SELECTING A ROUTE OF A NET  
BASED ON THE IMPACT ON ROUTES  
OF OTHER NETS

Examiner: <not yet assigned>

Group Art Unit: 2122

RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS

Box Missing Parts  
Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

In complete response to the Notice to File Corrected Application Papers dated 3/4/02,  
attached please find:

1. Notice to File Corrected Application Papers – Part 2; Method and Apparatus for Selecting a Route of a Net Based on the Impact on Routes of Other Nets.
2. 59 sheets of corrected drawings as set forth in 35 CFR 1.84.
3. A Return Receipt Post Card.

20060203 09:50:07

The Assistant Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 that may be required by this transmittal and associated documents, or to credit any overpayment to Deposit Account No. 50-1128 referencing SPLX.P0073.

Respectfully submitted,

Dated: May 5, 2002

By: \_\_\_\_\_

Mani Adeli  
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201020"03T99001



UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS  
UNITED STATES PATENT AND TRADEMARK OFFICE  
WASHINGTON, D.C. 20231  
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APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/066,160	01/31/2002	Steven Teig	SPLX.P0073

23349  
STATTLER JOHANSEN & ADELI  
P O BOX 51860  
PALO ALTO, CA 94303

CONFIRMATION NO. 3579

FORMALITIES LETTER



\*OC00000007574642\*

Date Mailed: 03/04/2002

## NOTICE TO FILE CORRECTED APPLICATION PAPERS

*Filing Date Granted*

This application has been accorded an Application Number and Filing Date. The application, however, is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given **TWO MONTHS** from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a)

The required item(s) identified below must be timely submitted to avoid abandonment:

- Substitute drawings in compliance with 37 CFR 1.84 because:
  - drawing sheets do not have the appropriate margin(s) (see 37 CFR 1.84(g)). Each sheet must include a top margin of at least 2.5 cm. (1 inch), a left side margin of at least 2.5 cm. (1 inch), a right side margin of at least 1.5 cm. (5/8 inch), and a bottom margin of at least 1.0 cm. (3/8 inch);

*A copy of this notice **MUST** be returned with the reply.*

Customer Service Center  
Initial Patent Examination Division (703) 308-1202

PART 2 - COPY TO BE RETURNED WITH RESPONSE

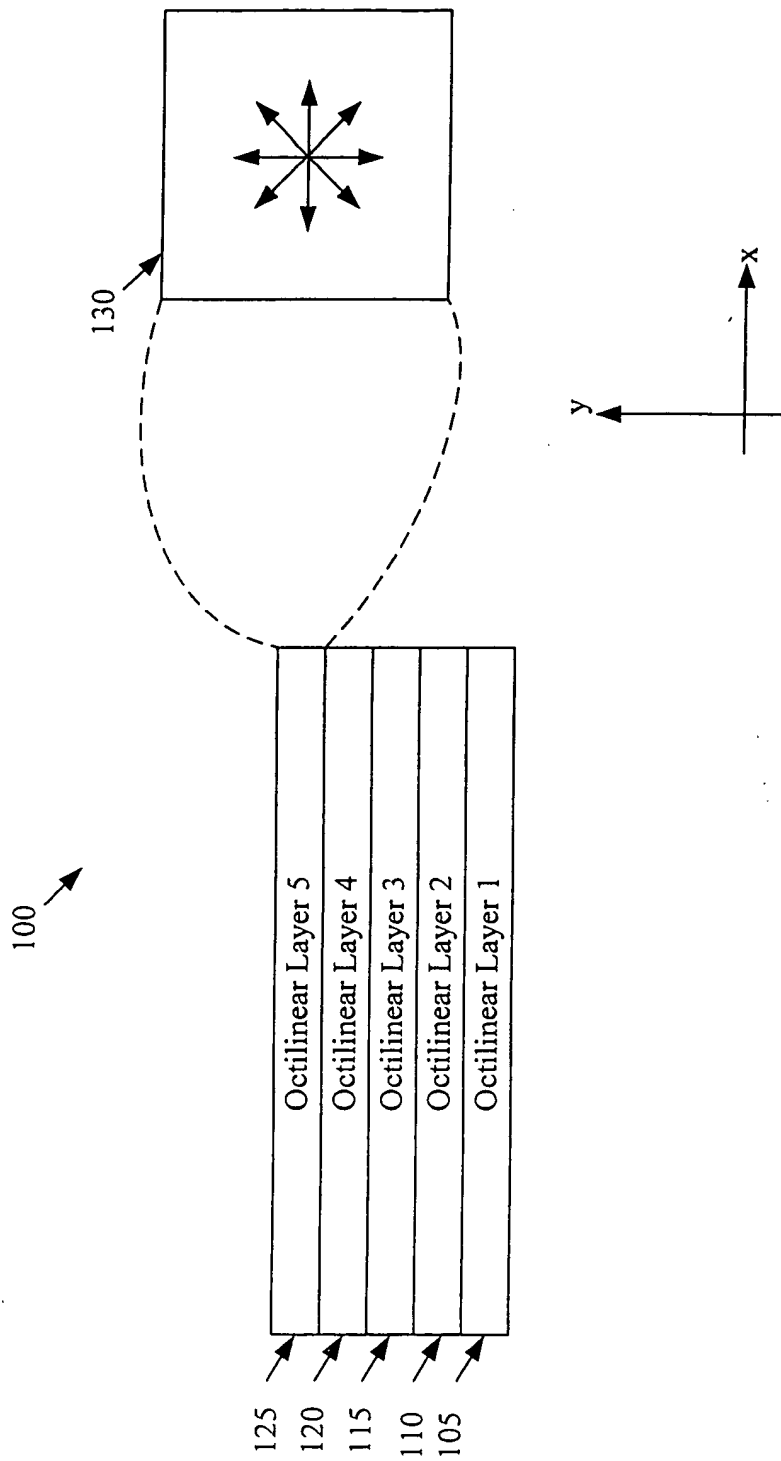
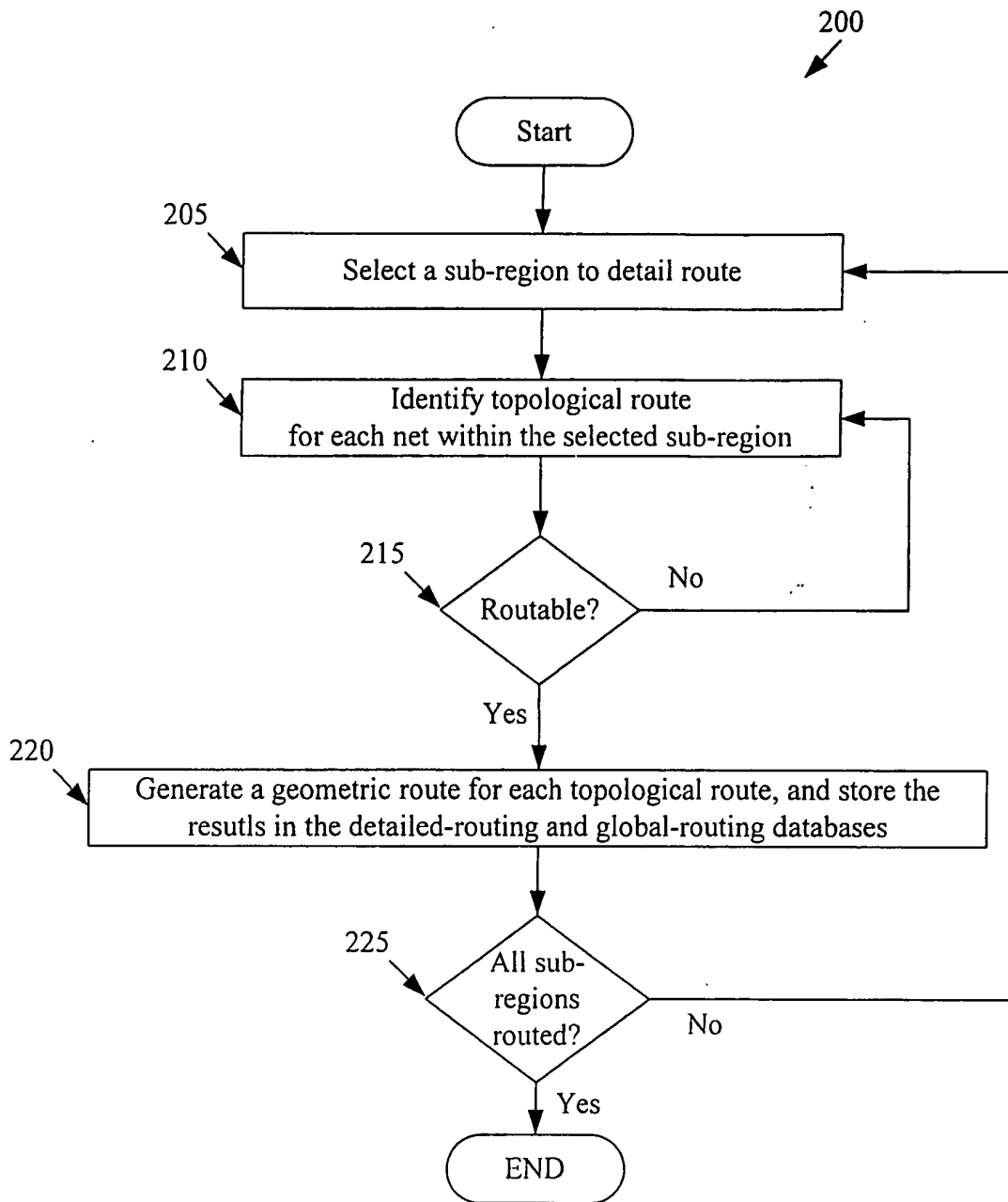


Figure 1



*Figure 2*

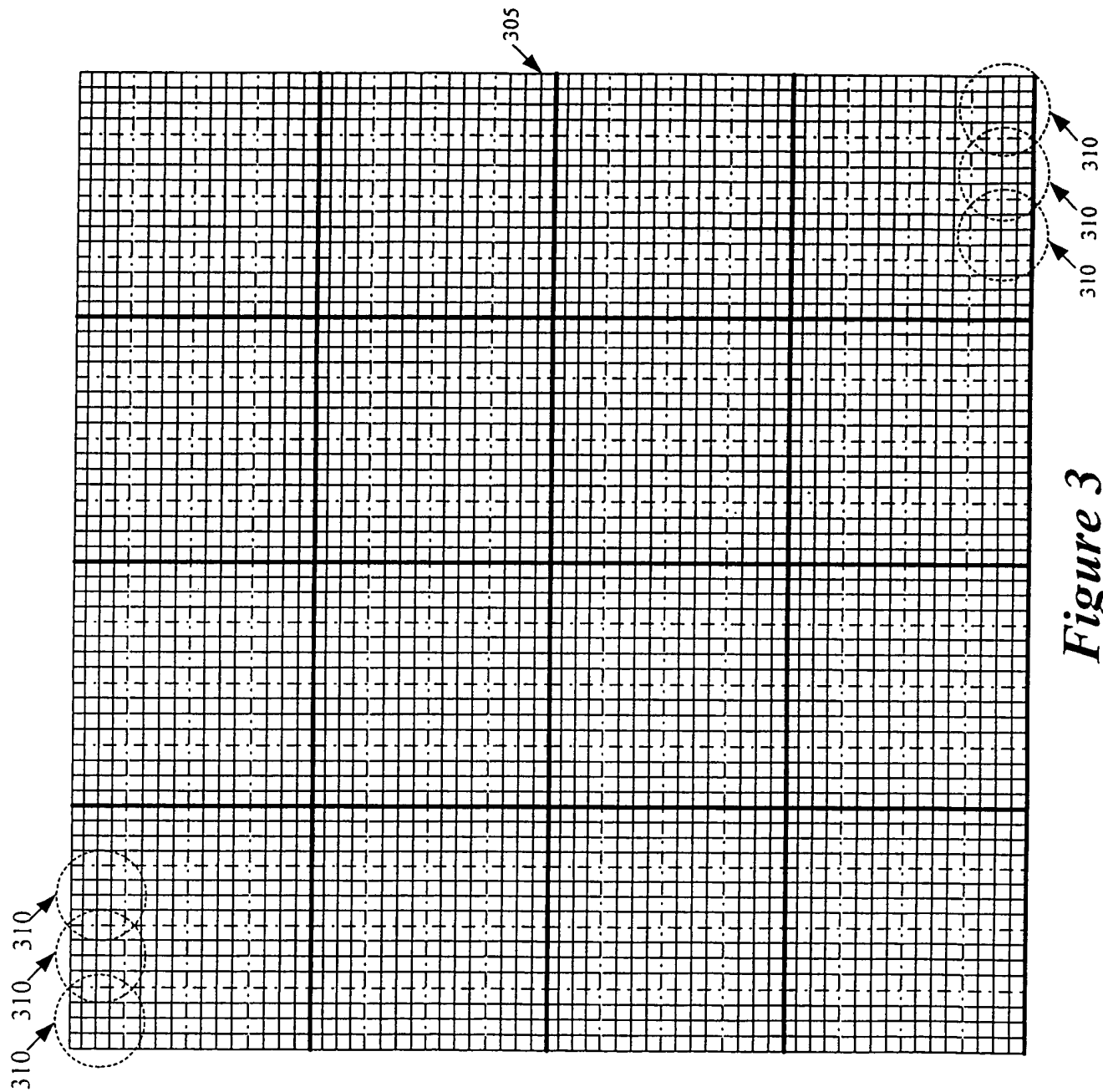


Figure 3

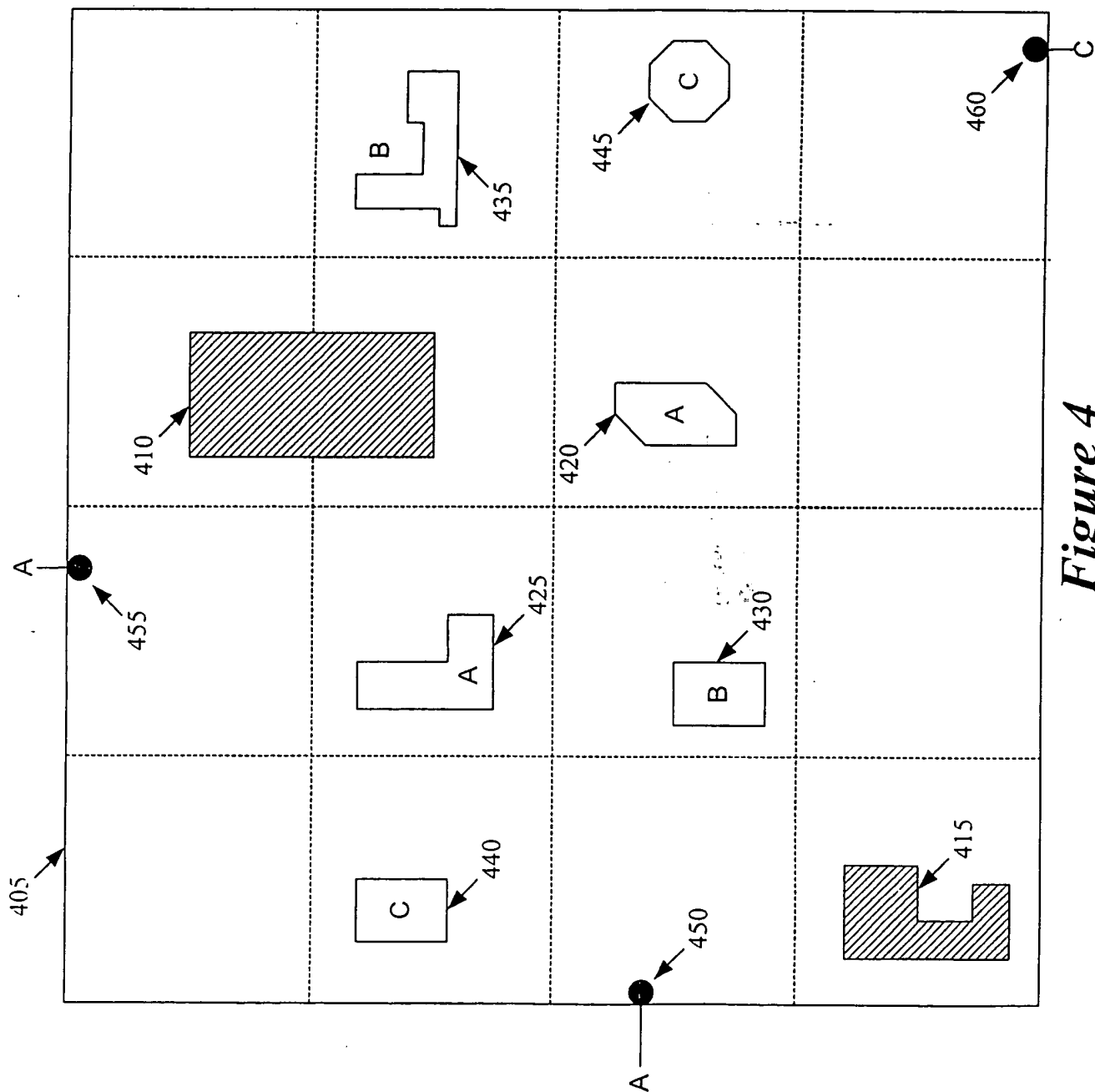


Figure 4

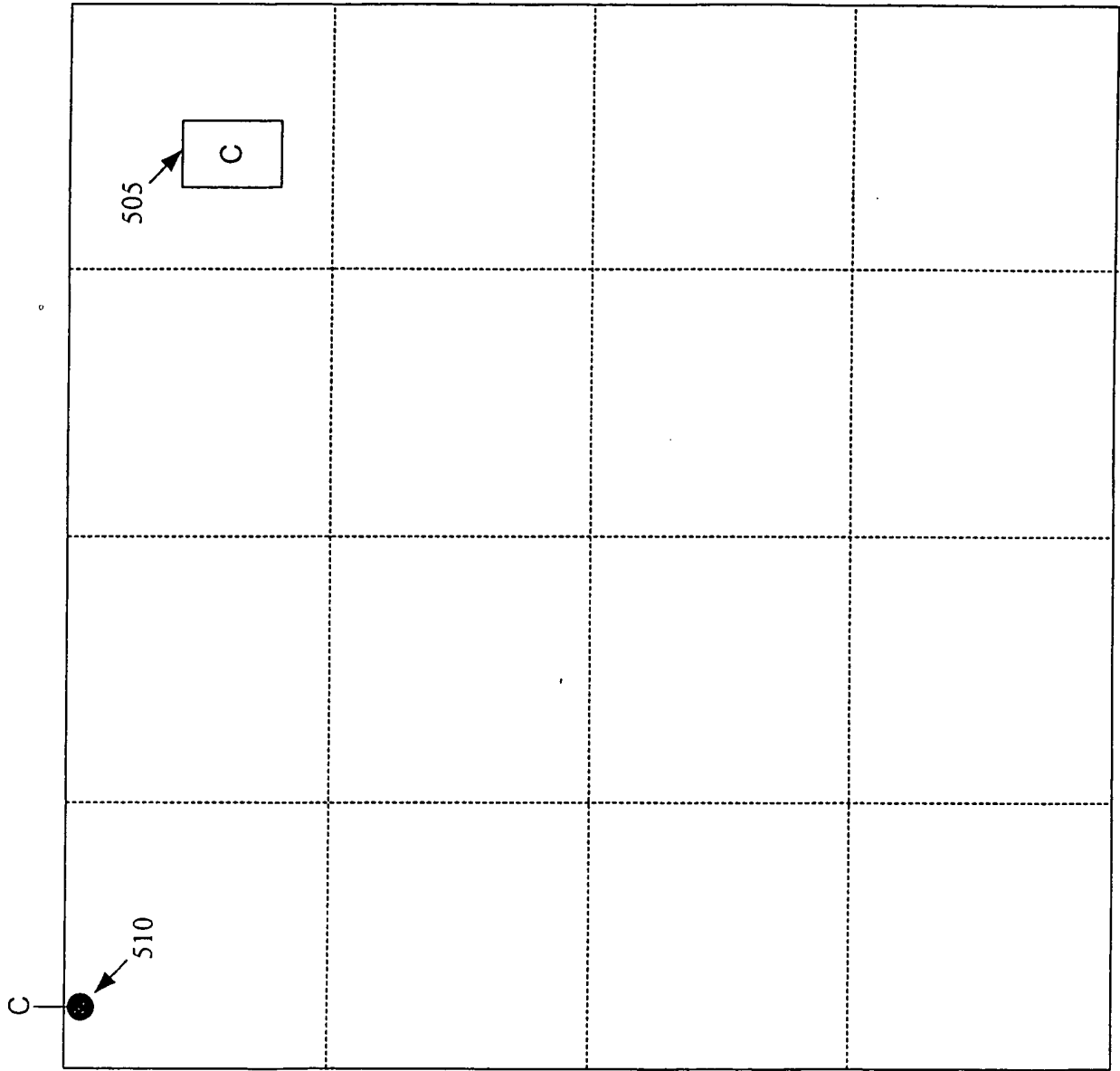


Figure 5



```

-List of Geometries
--Each Geometry including a sequence of points & layer assignment
-Bounding box of the region
-Array of layer properties
--Minimum wire size
--Minimum spacing
--Via sizes
--Cost/Unit
-Netlist specifying a number of nets
--Each net specifying a set of pins
--Each pin specifying a set of ports
--Each port specifying a set of geometries

```

Figure 6

```

-List of Geometries
--Each Geometry including a sequence of points & layer assignment
--List of connection nodes inside each pin geometry
-Bounding box of the region
-Array of layer properties
--Minimum wire size
--Minimum spacing
--Via sizes
--Cost/Unit
-Netlist specifying a number of nets
--Each net specifying a set of pins
--Each pin specifying a set of ports
--Each port specifying a set of geometries
-For each layer, a graph specifying
--Nodes
--Edges
--Faces

```

Figure 7

Face
<ul style="list-style-type: none"><li>-Reference to 3 edges</li><li>-Reference to 3 nodes</li><li>-Up to two references for up to two face item</li></ul>

800

Edge
<ul style="list-style-type: none"><li>-Two references for up to two faces of the edge</li><li>-Capacity</li><li>-Flow</li><li>-Constrained</li><li>-Linked list of items on the edge starting with one of the edge's nodes and ending with its other node</li></ul>

900

Figure 8

Figure 9

Node
<ul style="list-style-type: none"> <li>-Net Identifier</li> <li>-One or more planar-path references to adjacent topological items in the same planar path</li> <li>-A pair of via-path references to up and down topological via items</li> <li>-A references to list of edges connected to the node</li> <li>-For each edge, an edge reference to the next or previous topological item on the edge</li> <li>-A reference to the geometry of the node</li> <li>-Vertex number identifying the vertex of the geometry</li> <li>-Location of the node</li> </ul>

1000

Figure 10

Edge Item
<ul style="list-style-type: none"> <li>-Reference to its edge</li> <li>-Net Identifier</li> <li>-A pair of planar-path references to adjacent topological items in the same planar path</li> <li>-A pair of edge references to the next and previous topological item on the edge</li> </ul>

1100

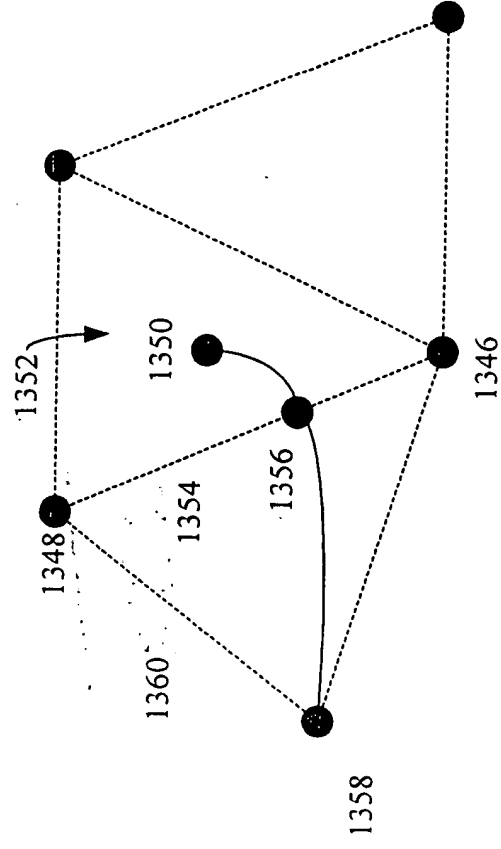
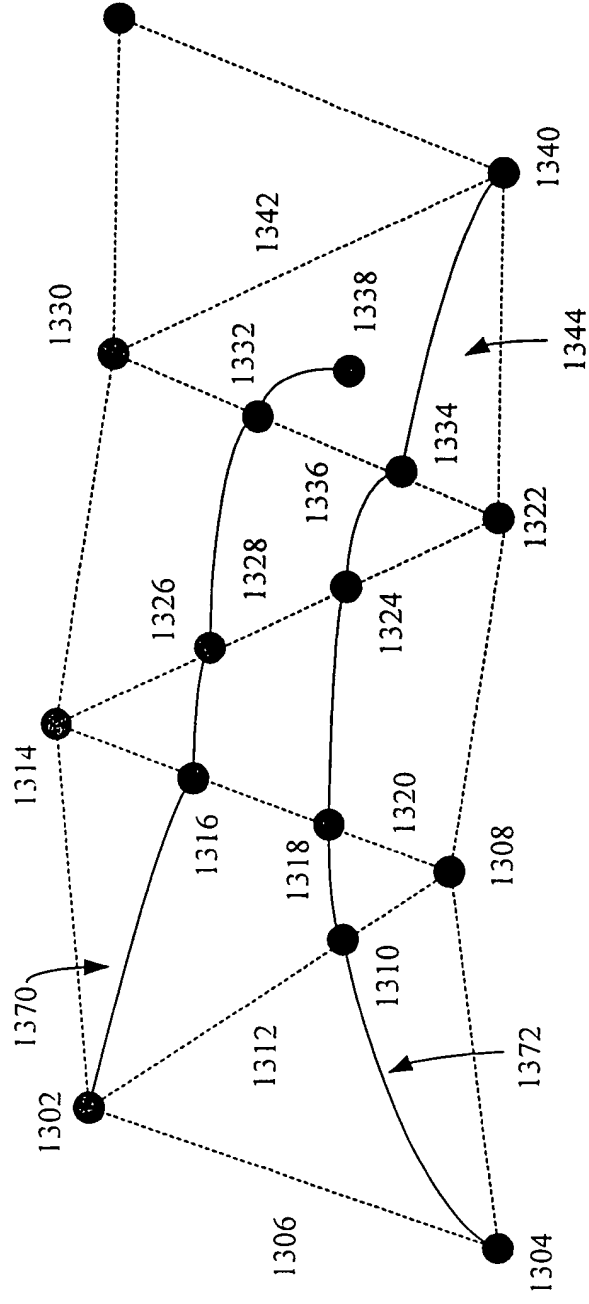
Face Item
<ul style="list-style-type: none"> <li>-Reference to its face</li> <li>-Net Identifier</li> <li>-Up to 3 planar-path references for adjacent topological items in the same planar path</li> <li>-A pair of via-path references for up and down topological via items</li> <li>-Bounding polygon that defines legal face item locations</li> <li>-Constraining Points and Distances</li> </ul>

1200

Figure 11

Figure 12

## Layer 2



*Figure 13*

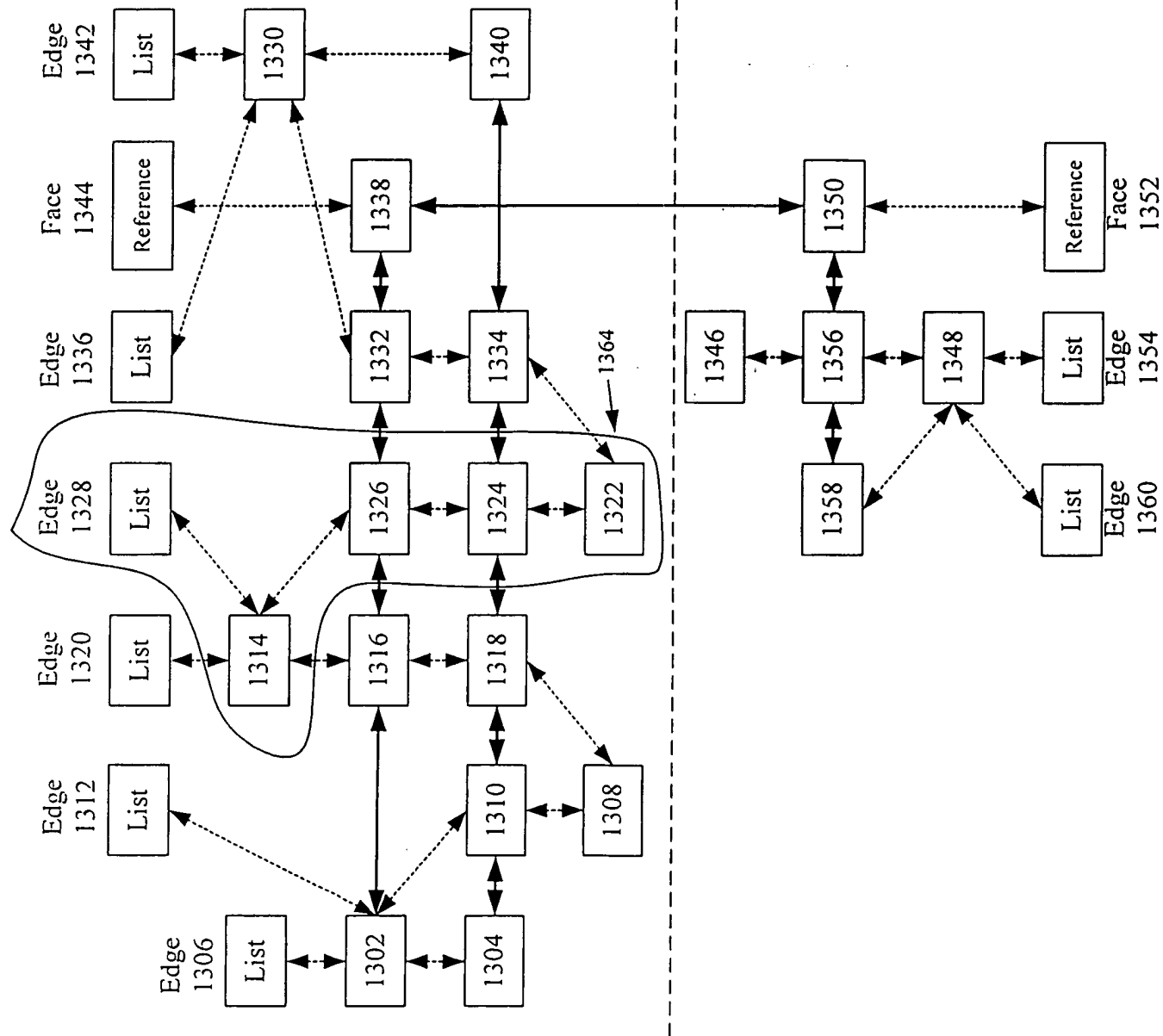
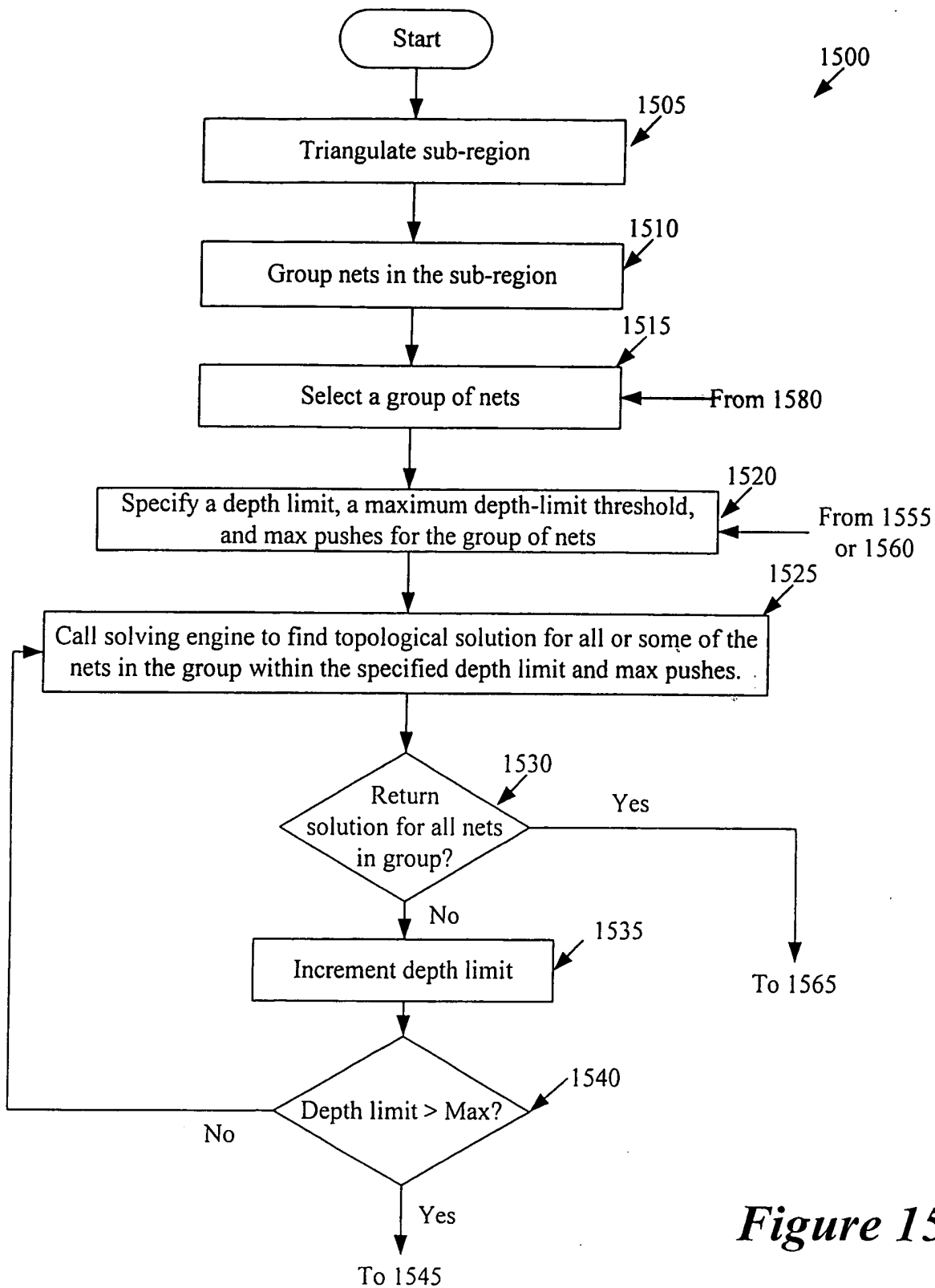


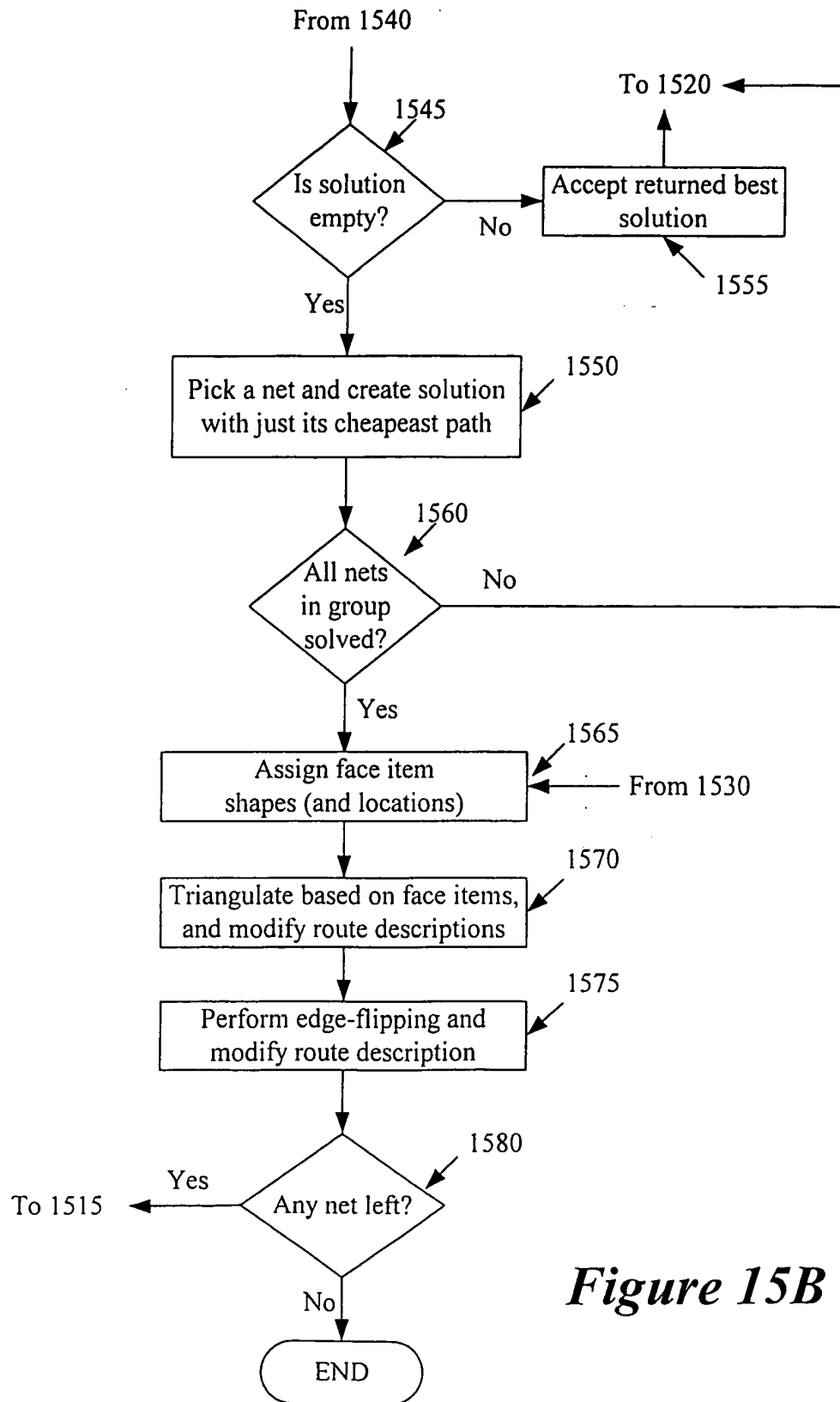
Figure 14



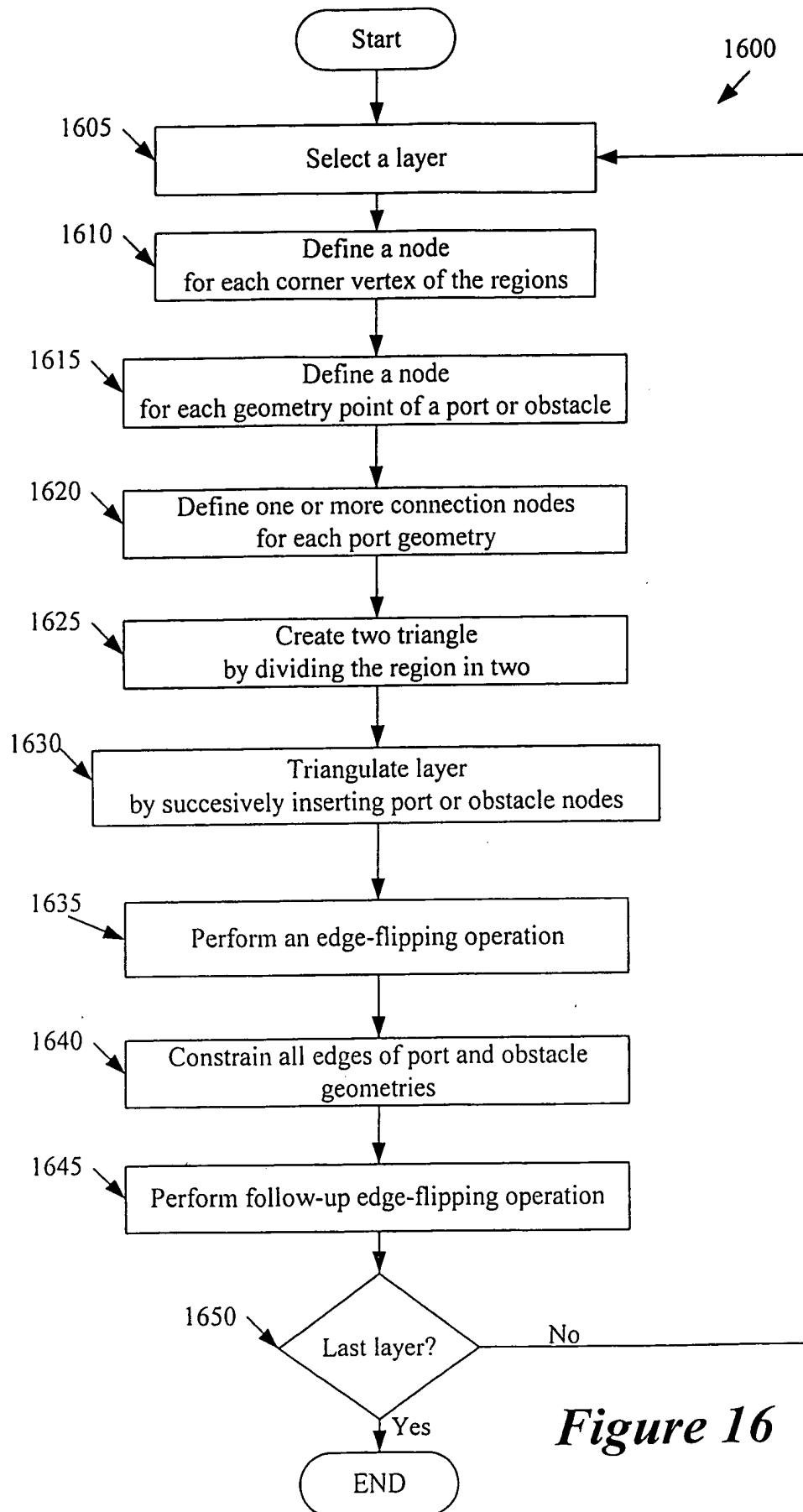
**Figure 15A**

**Figure 15:** *Figure 15A*  
*Figure 15B*

2010-03-03



**Figure 15B**

*Figure 16*



207020° 03T9900T

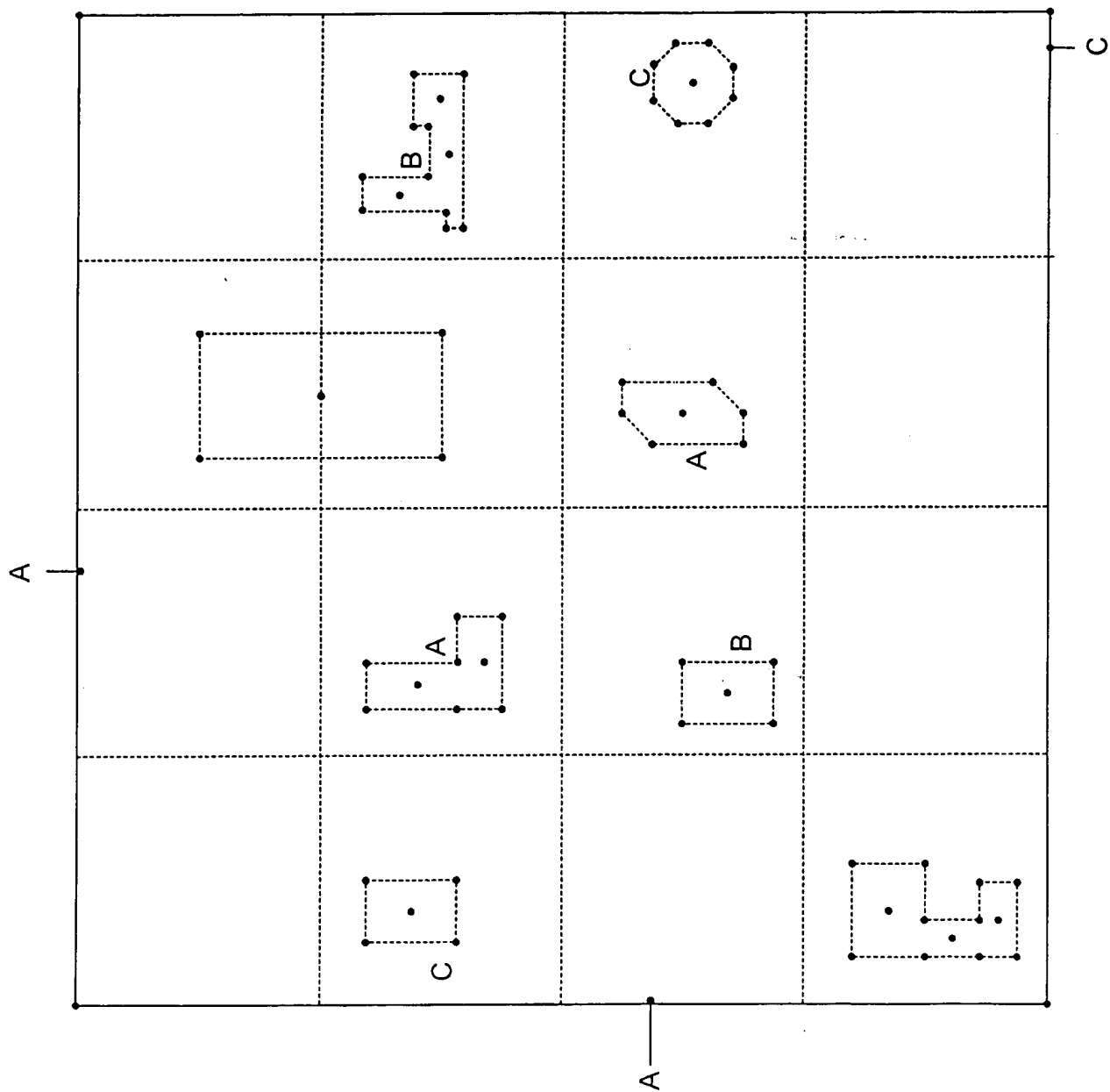


Figure 17

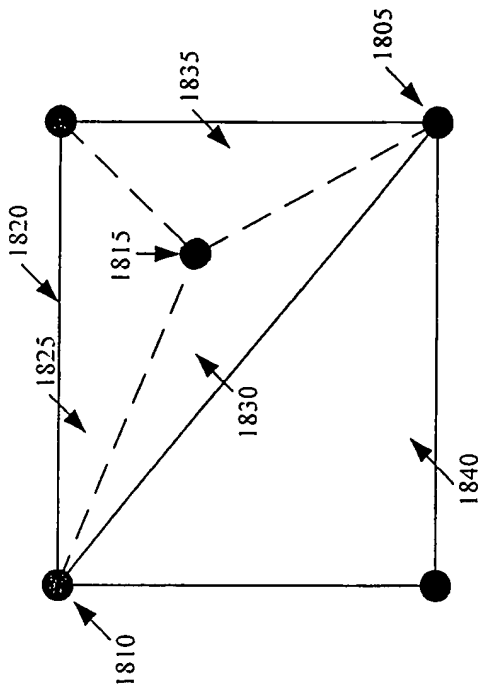


Figure 18

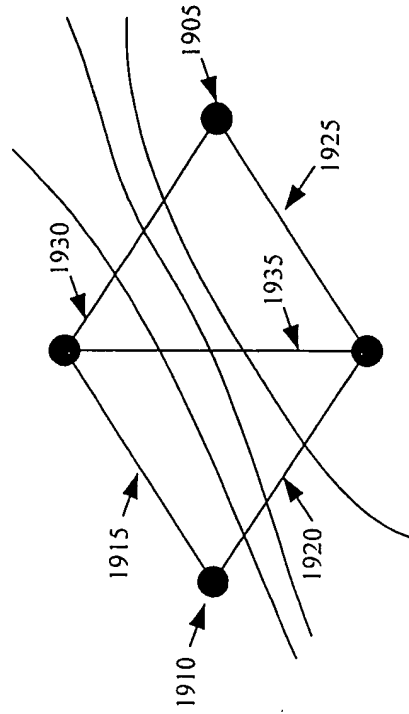


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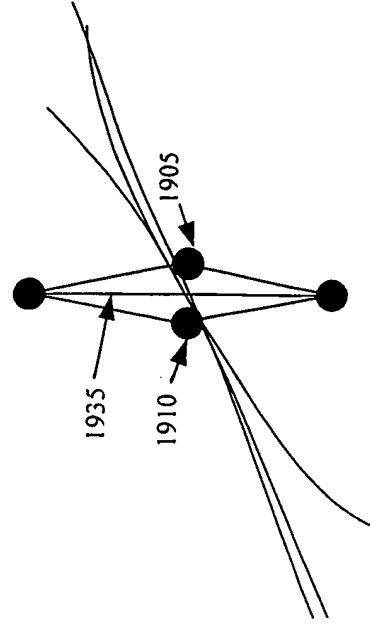


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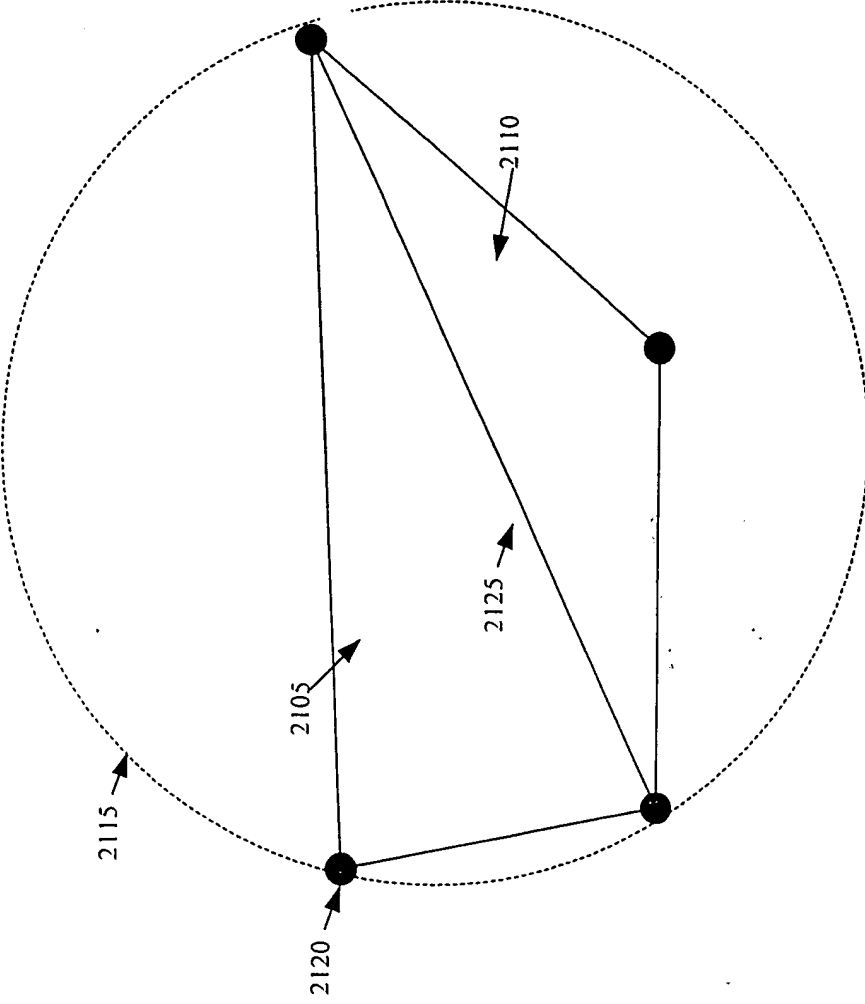


Figure 21

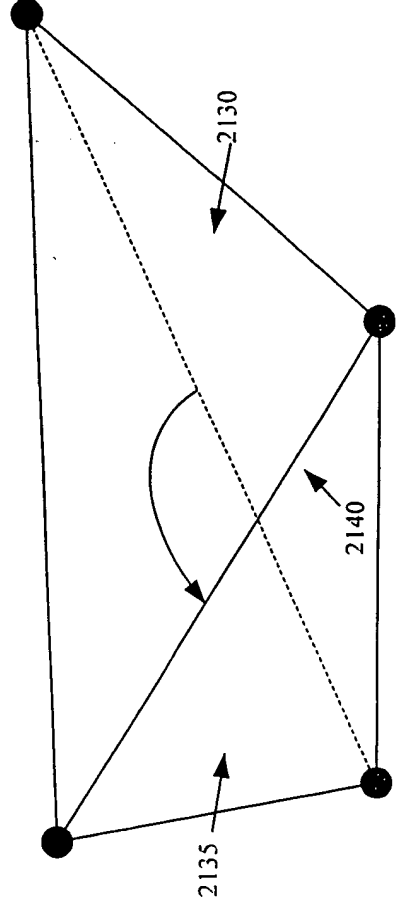


Figure 22

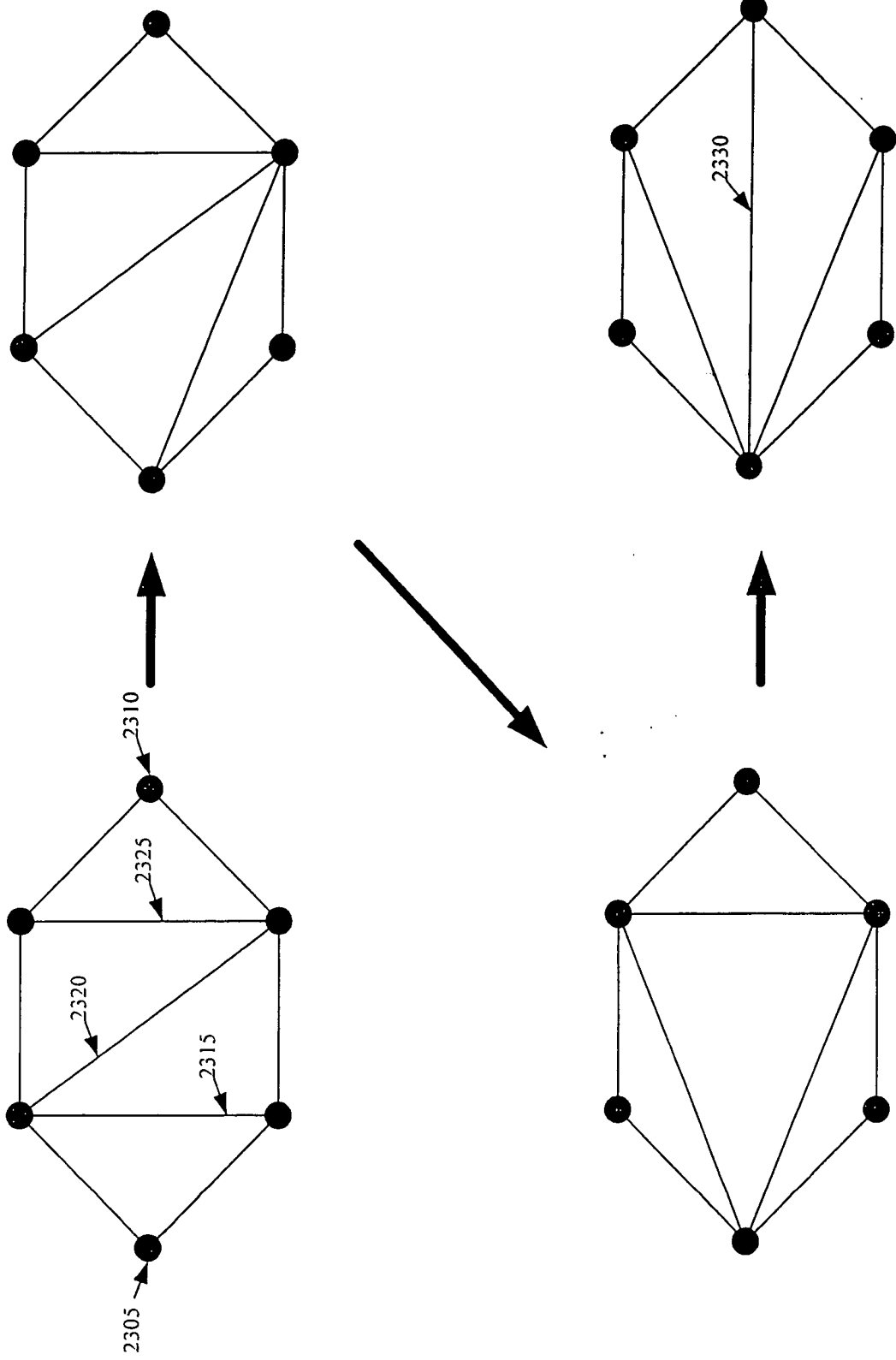


Figure 23

201.040-03799007

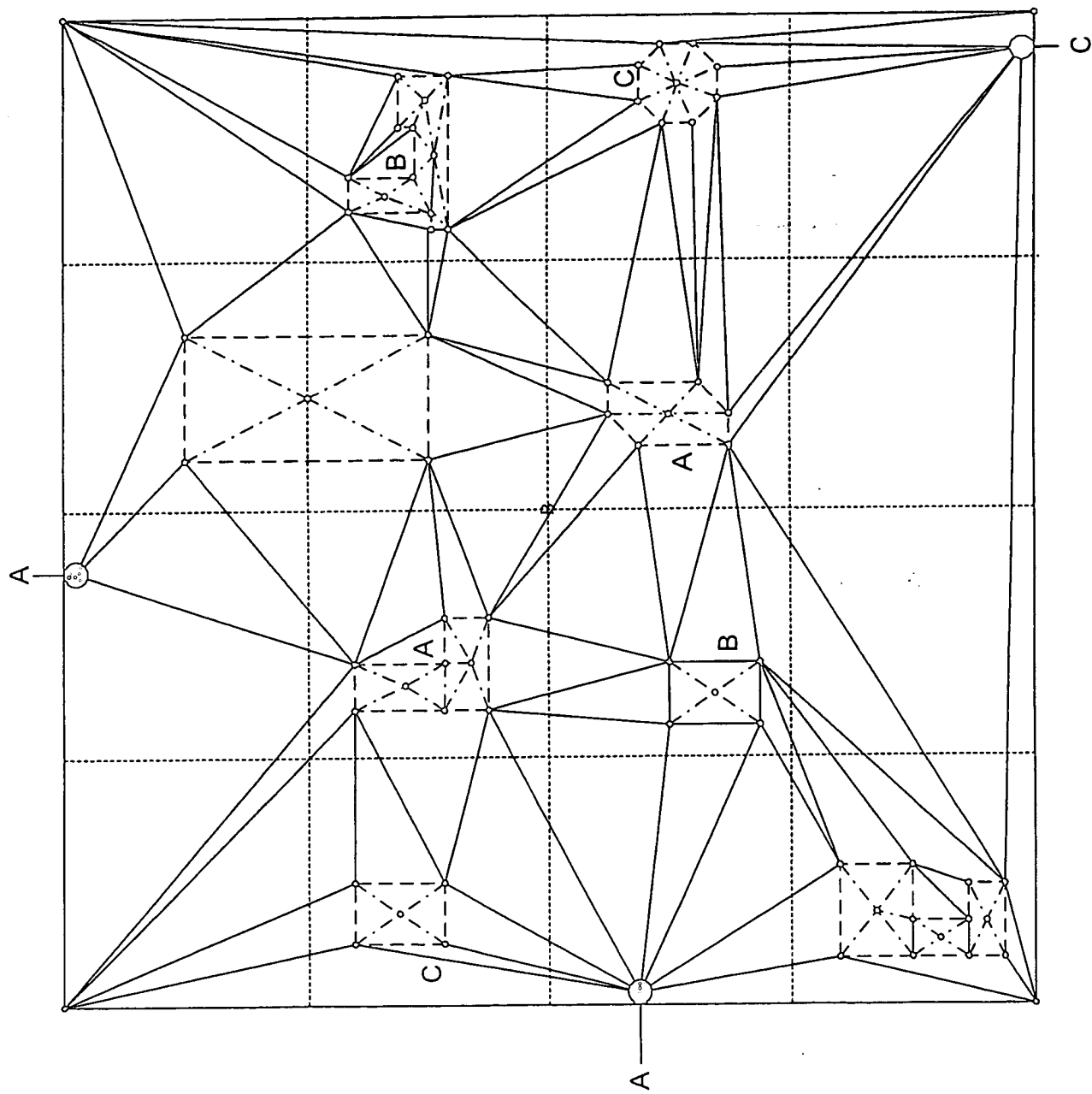
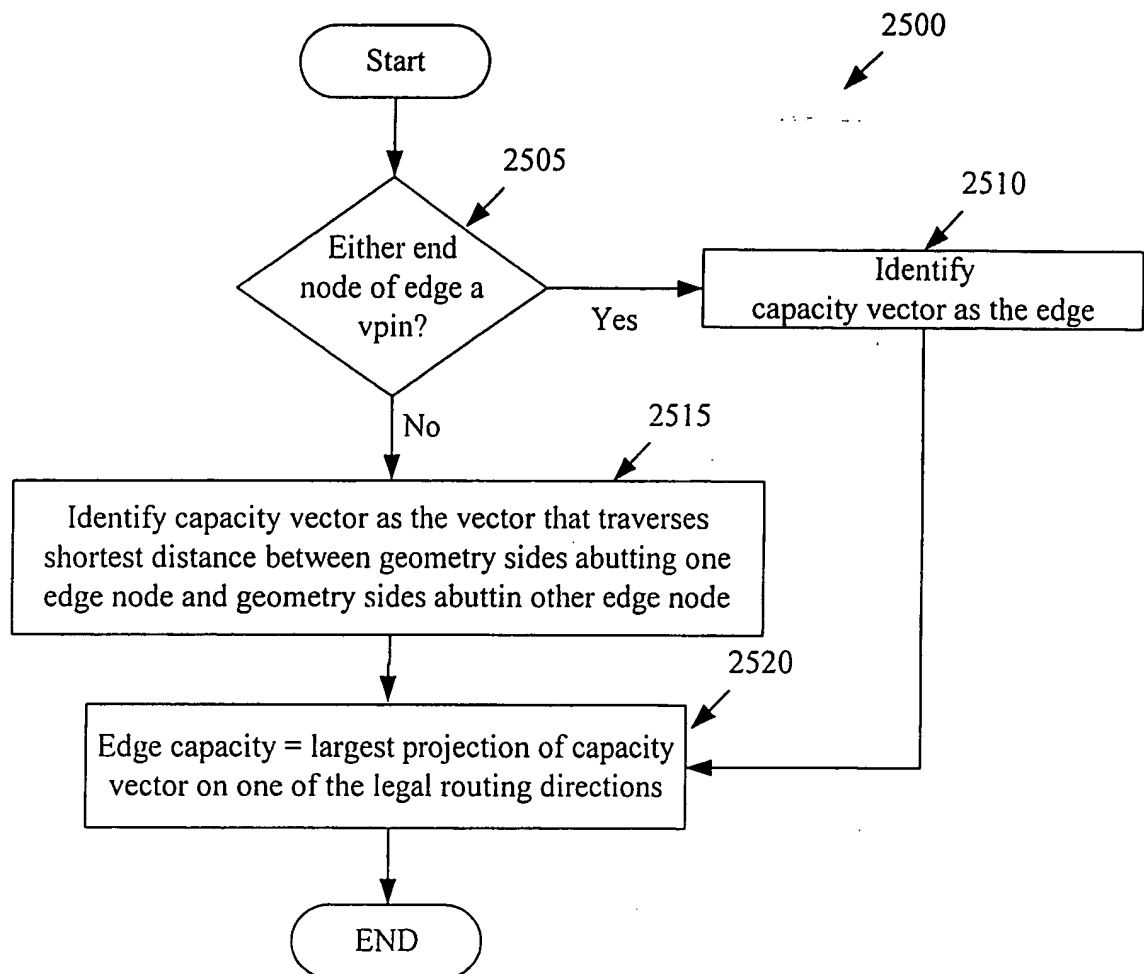


Figure 24



*Figure 25*

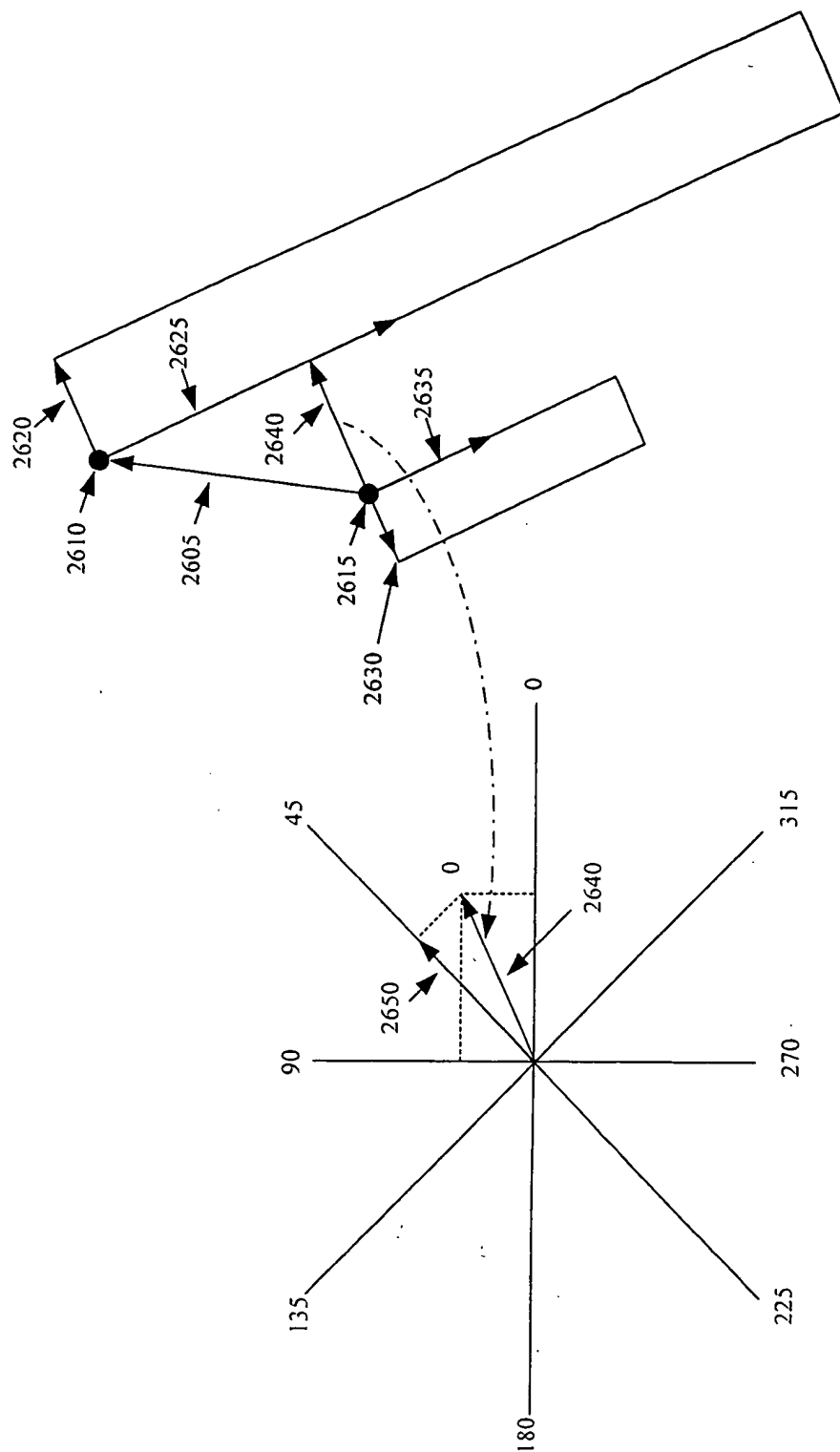


Figure 26

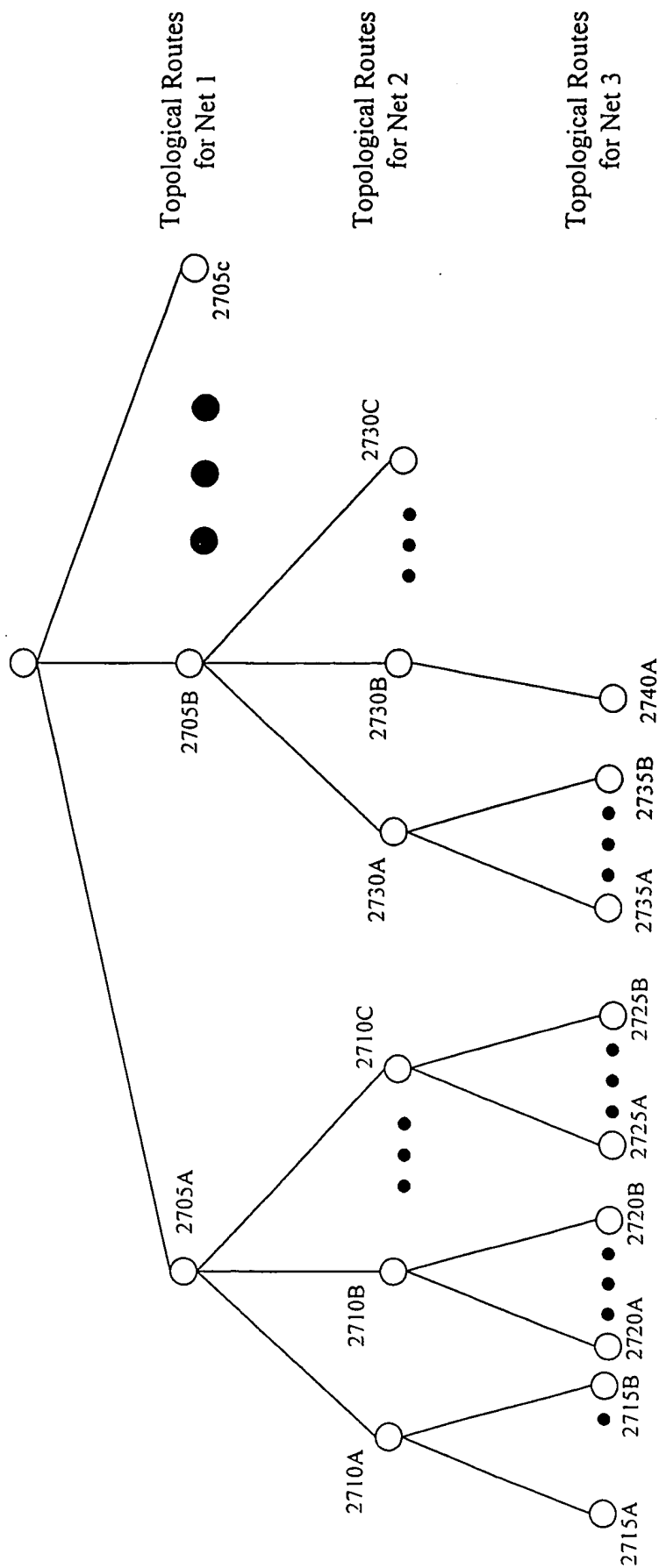
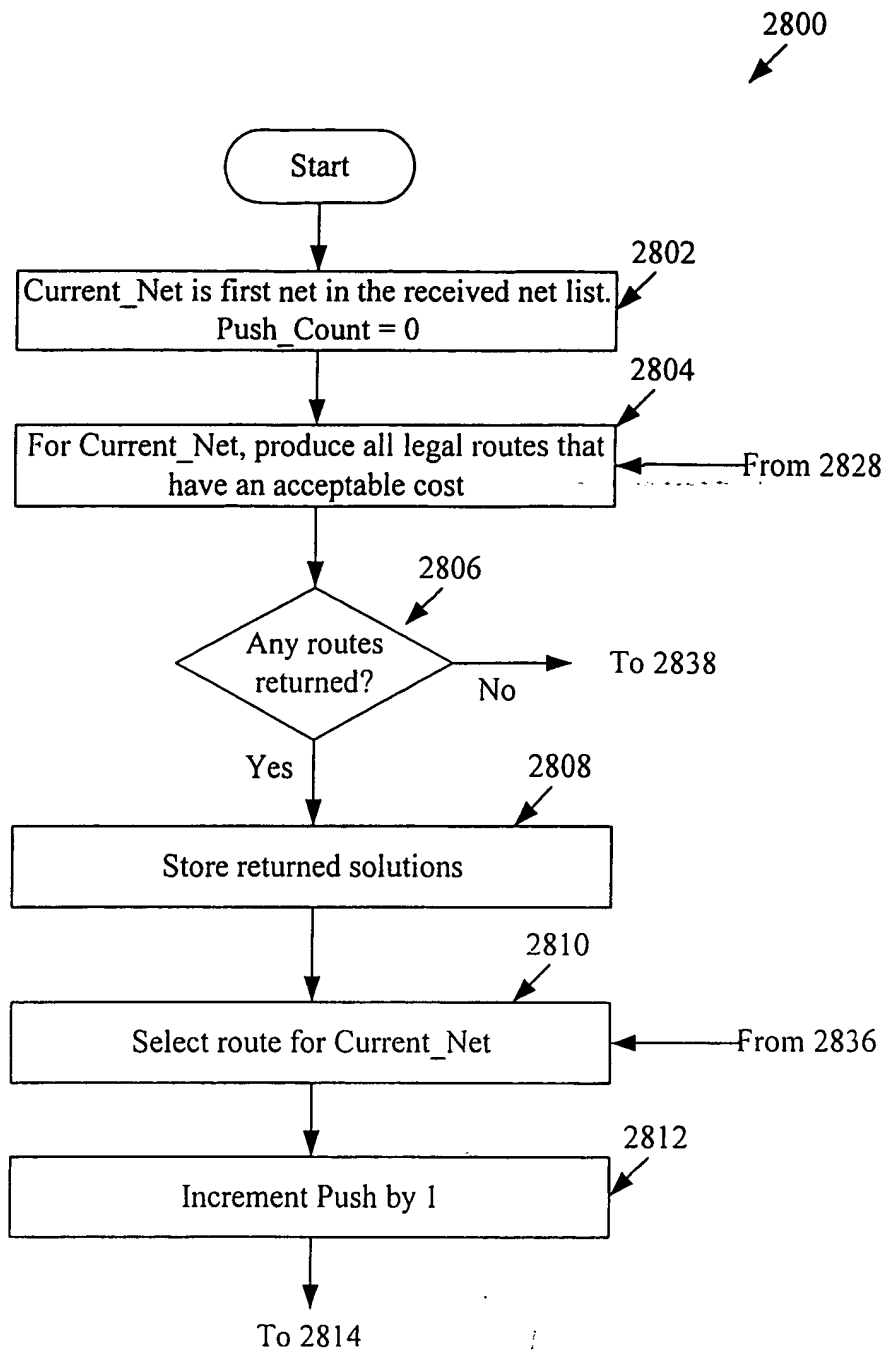


Figure 27





*Figure 28A*

*Figure 28:*  $\frac{\text{Figure 28A}}{\text{Figure 28B} + \text{Figure 28C}}$

2016-03-09 15:00:00

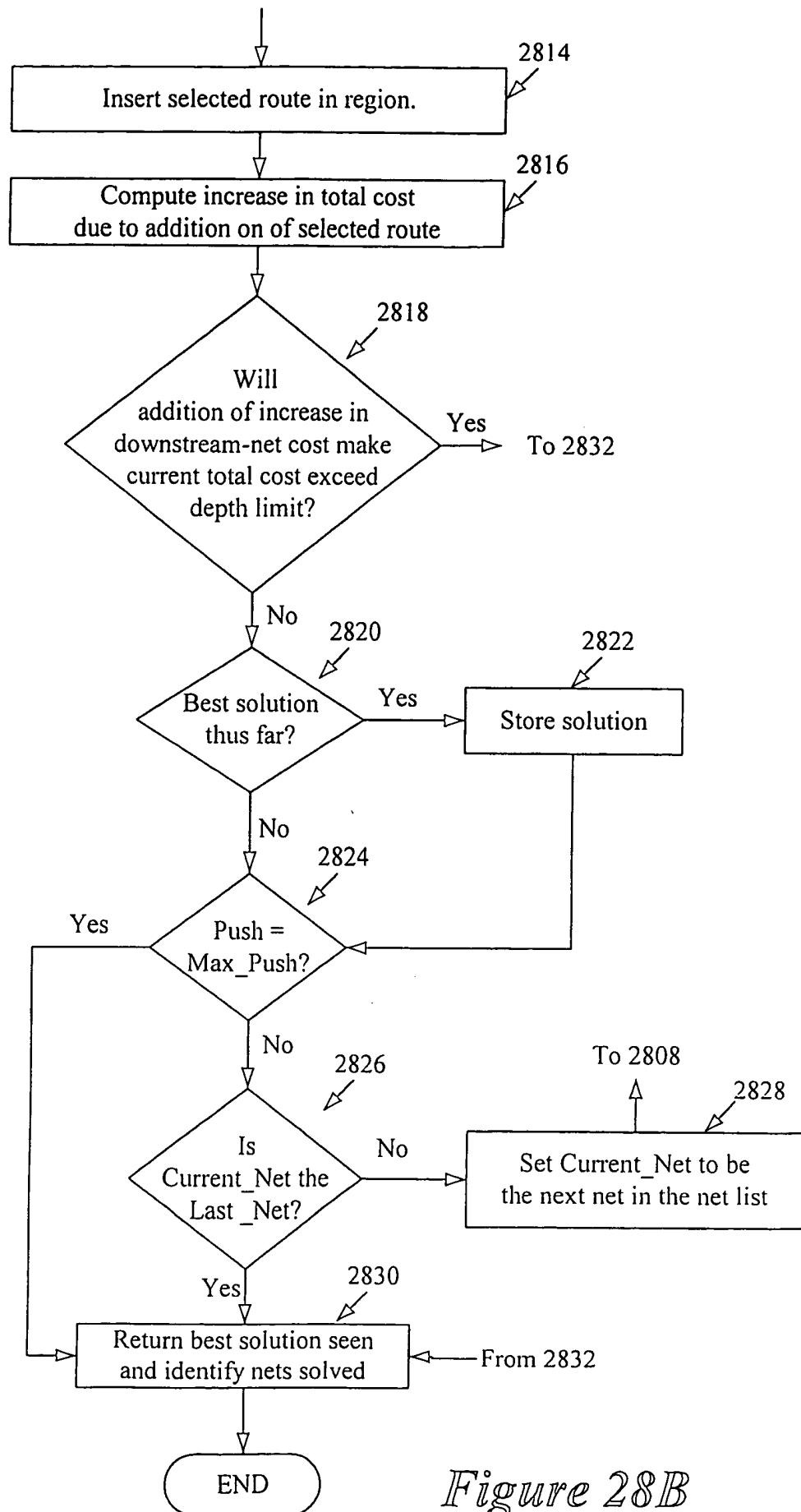
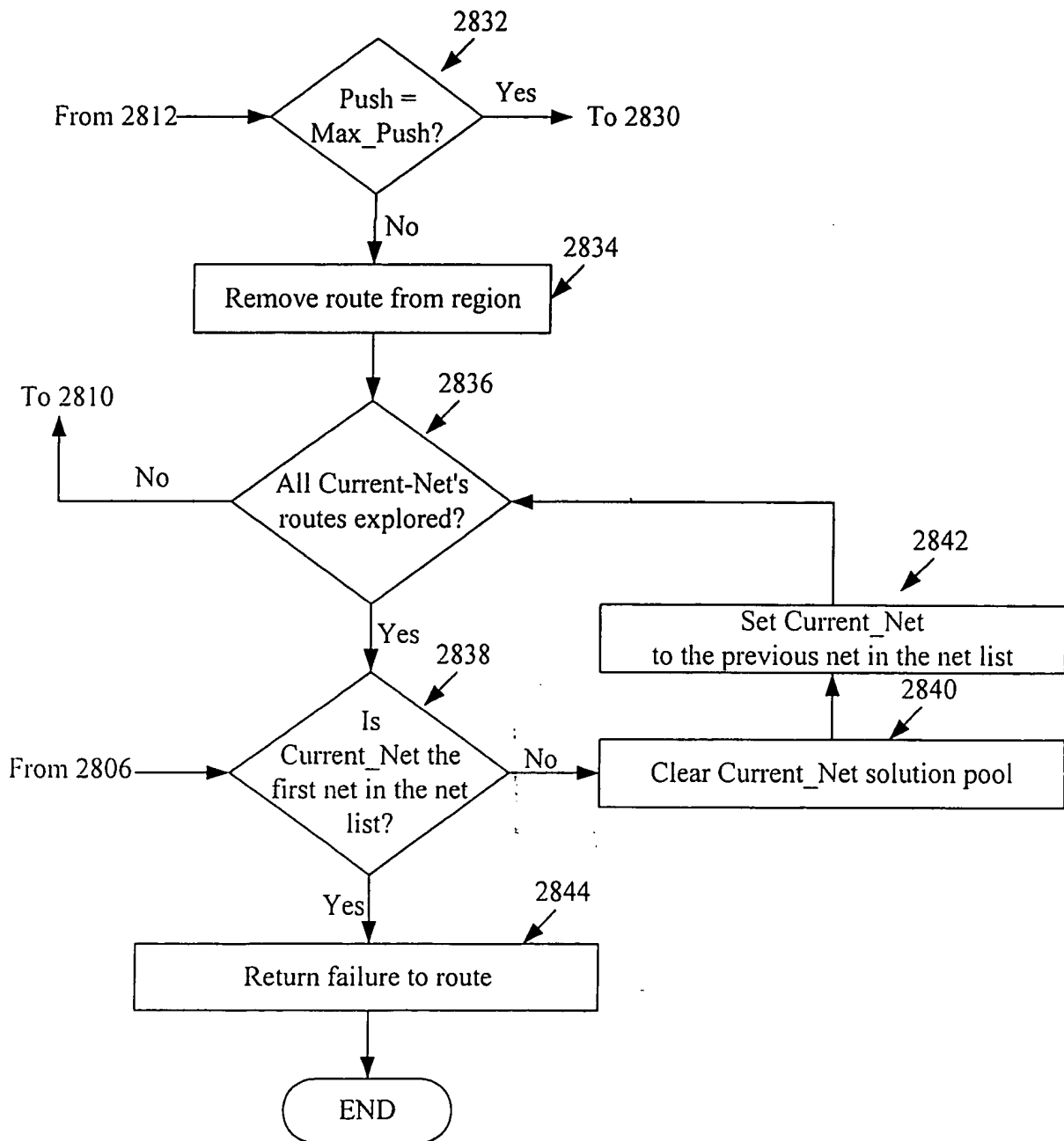
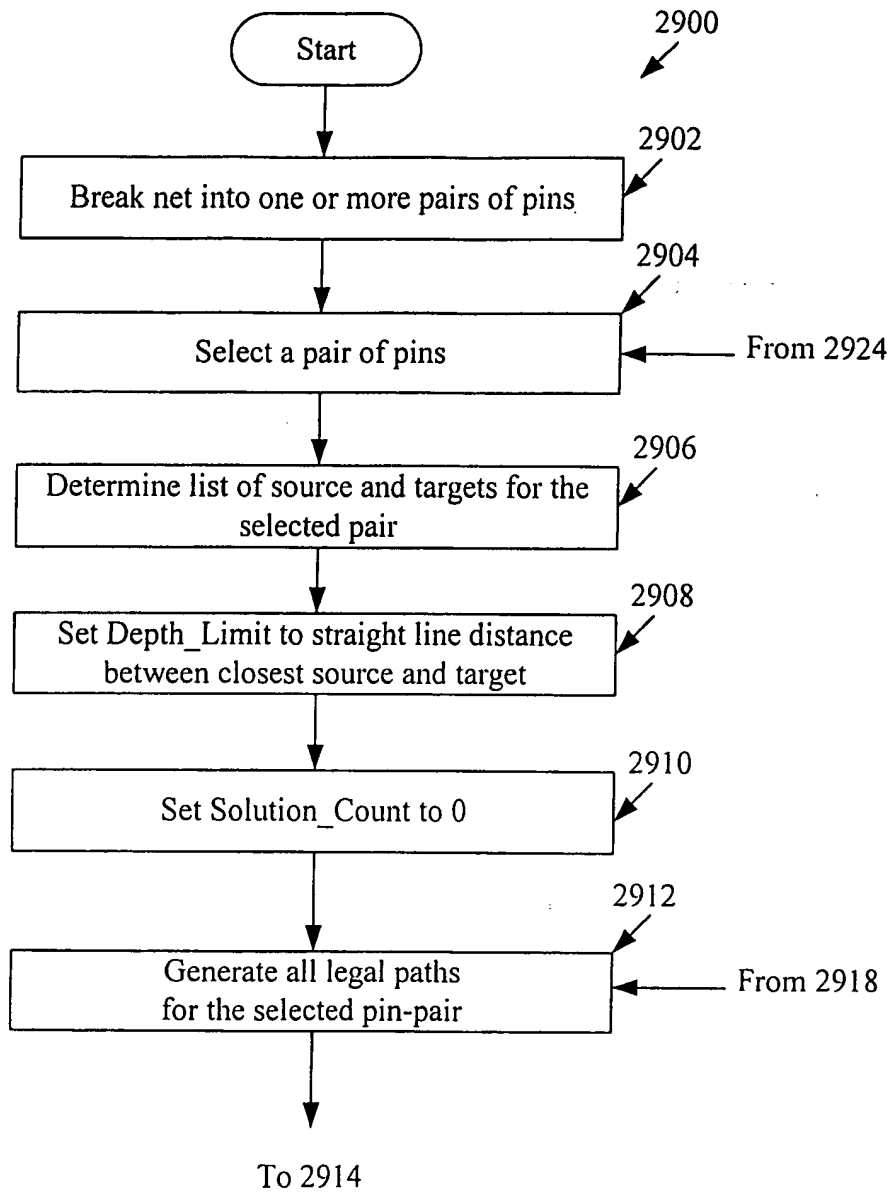


Figure 28B

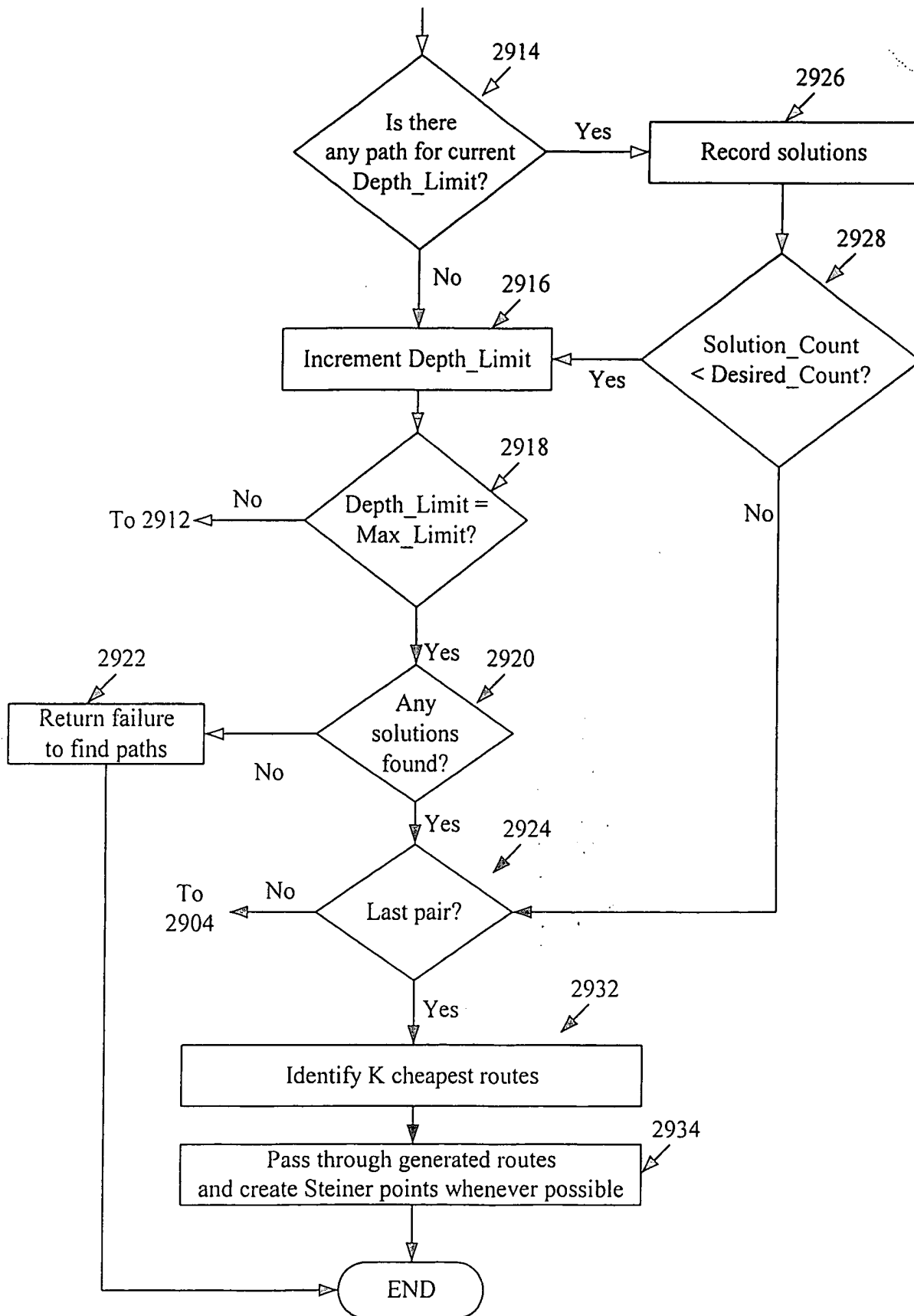


**Figure 28C**



**Figure 29A**

**Figure 29:**  $\frac{\text{Figure 29A}}{\text{Figure 29B}}$



*Figure 29B*

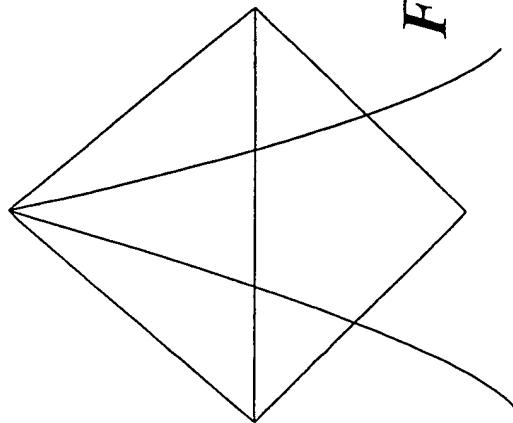


Figure 30A

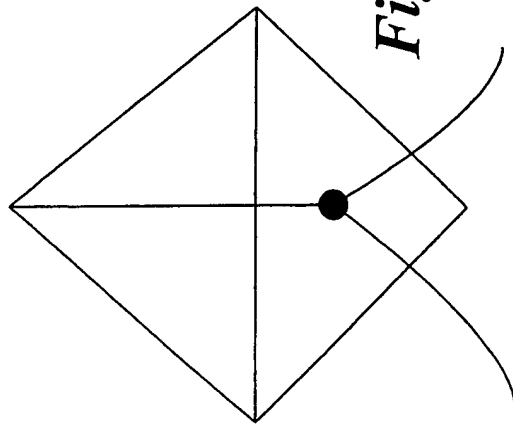


Figure 30B

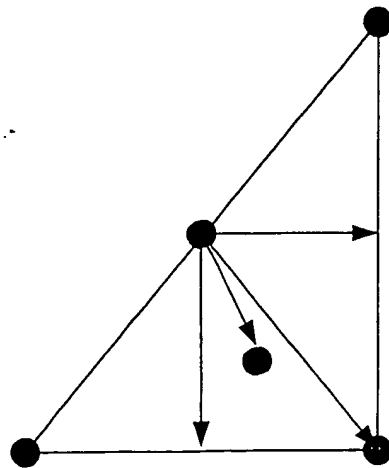


Figure 32

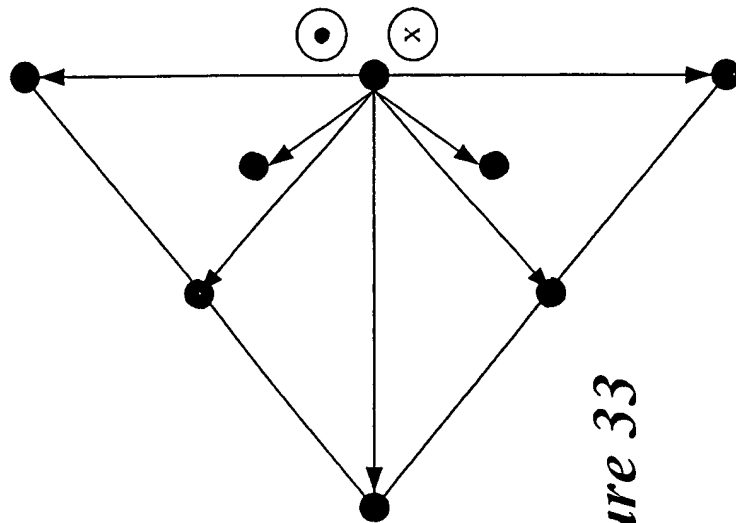


Figure 33

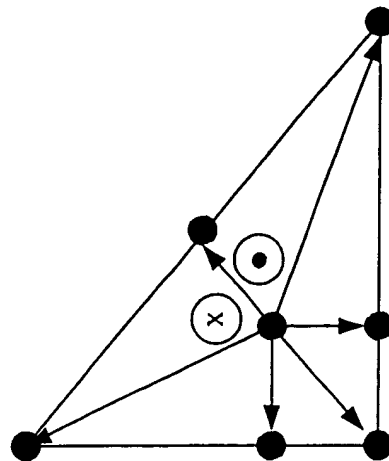
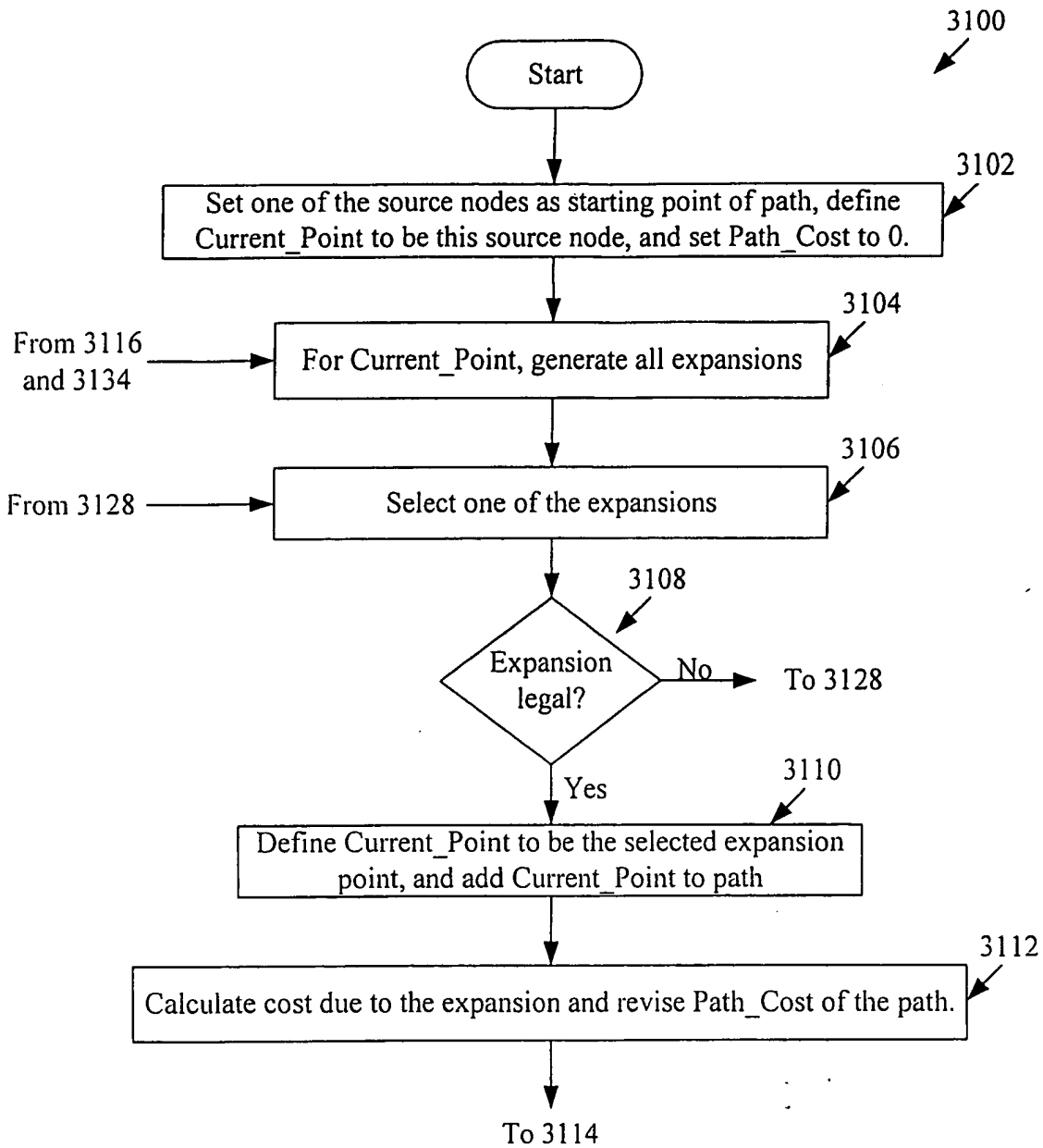


Figure 34



*Figure 31A*

*Figure 31:  $\frac{\text{Figure 31A}}{\text{Figure 31B}}$*

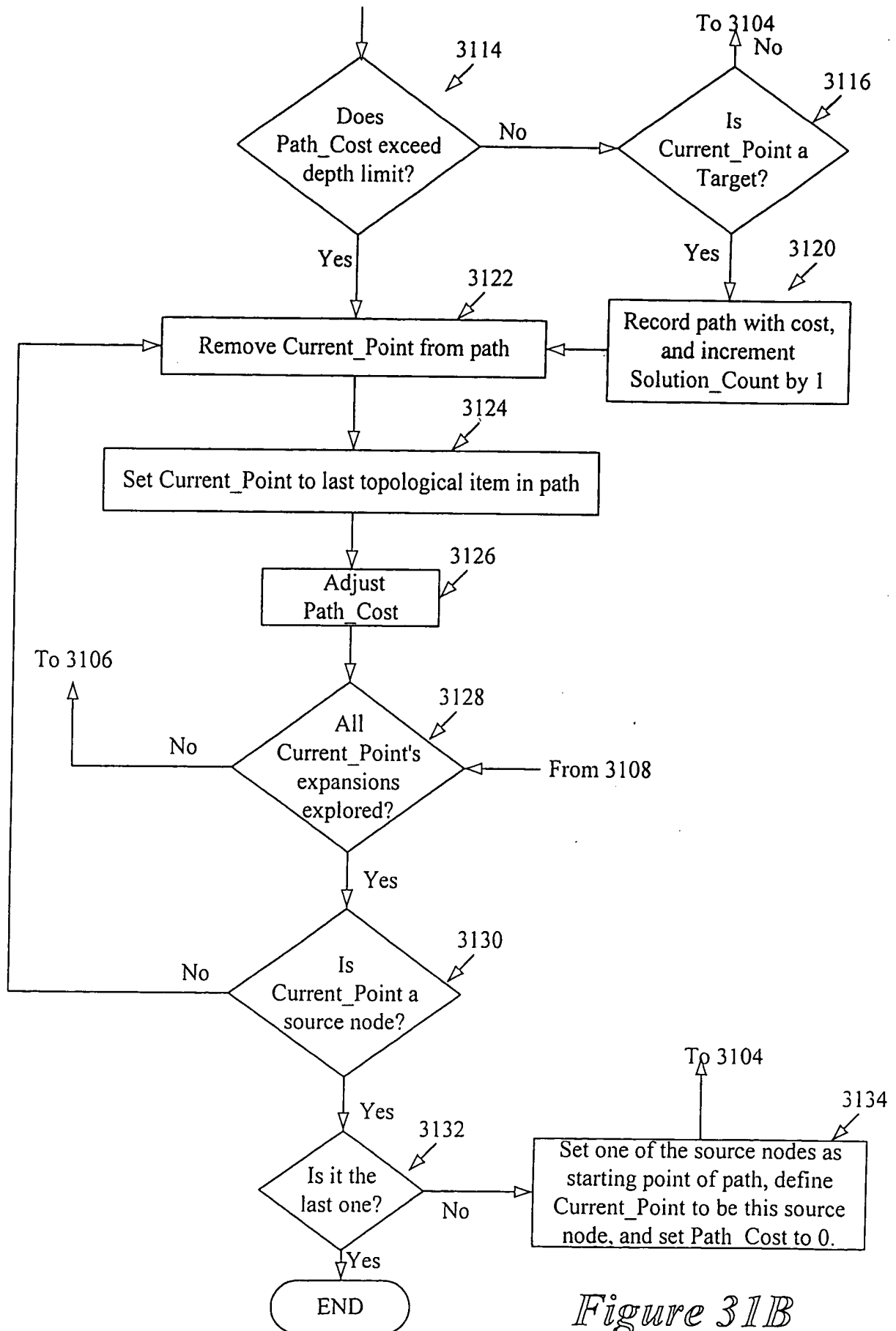


Figure 31B



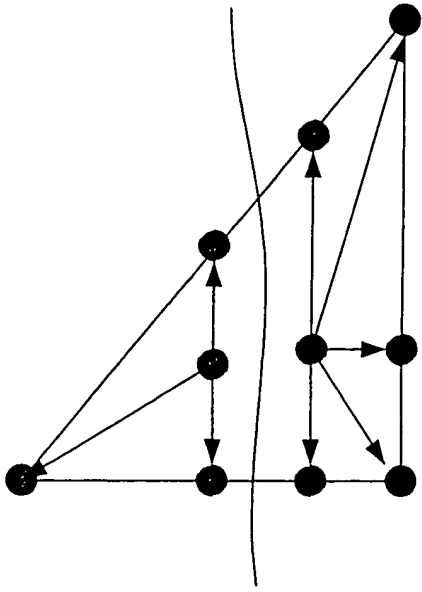


Figure 35

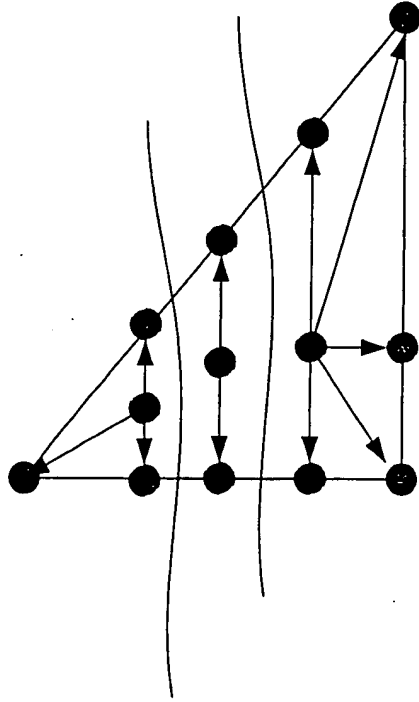


Figure 36

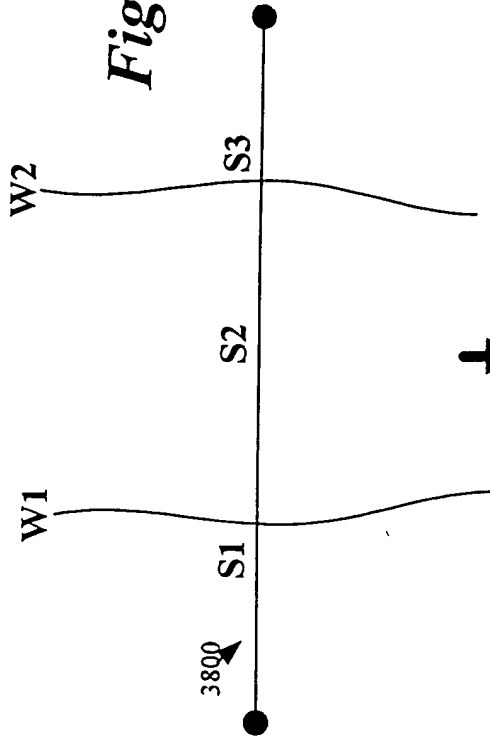


Figure 38A

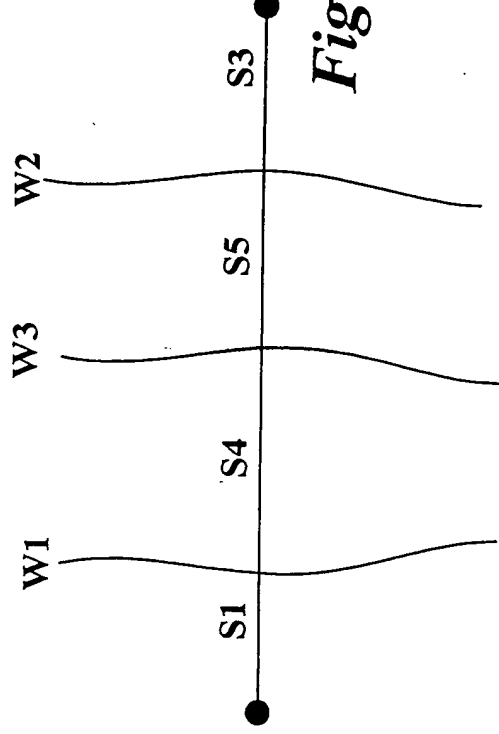
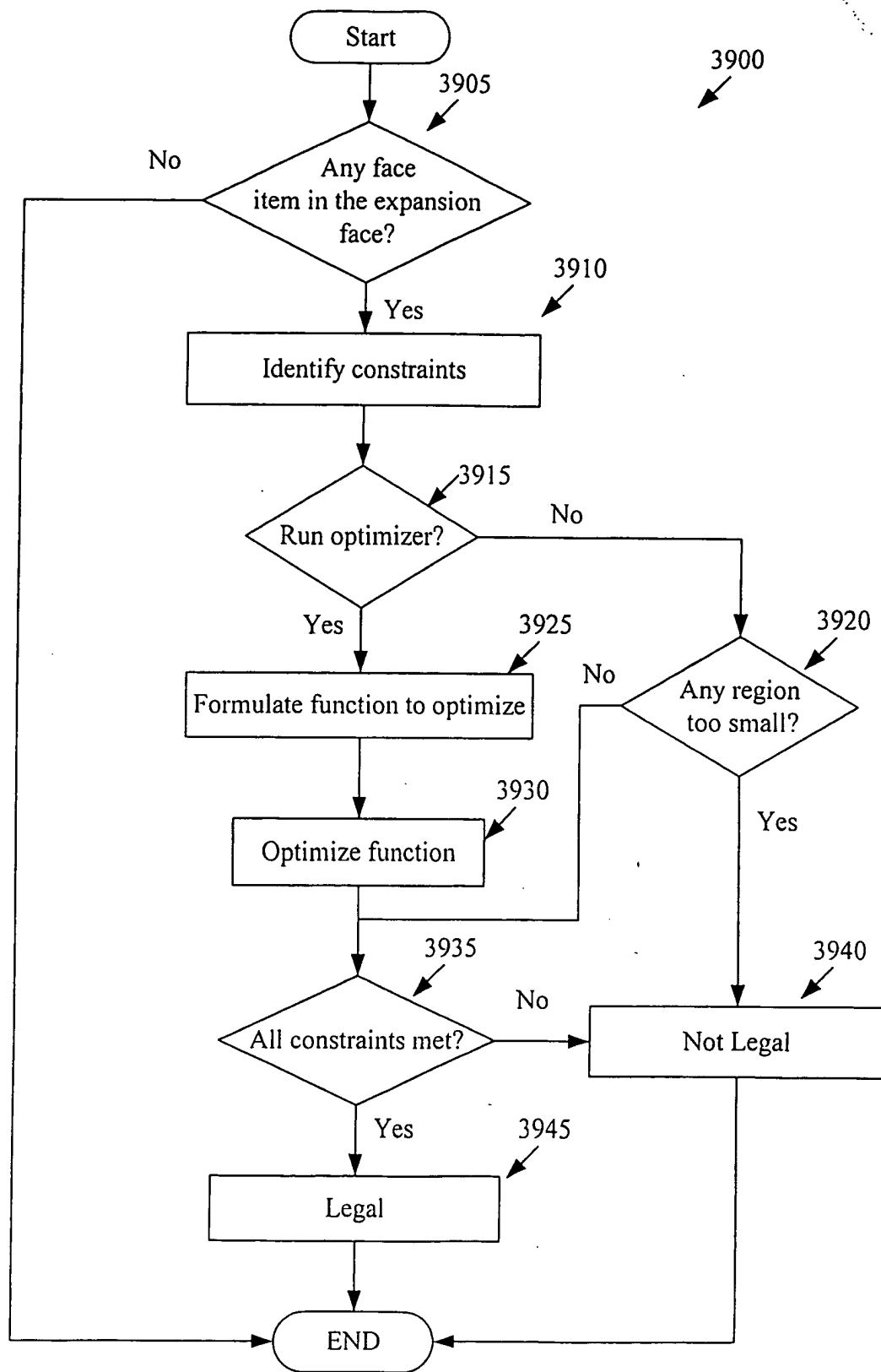


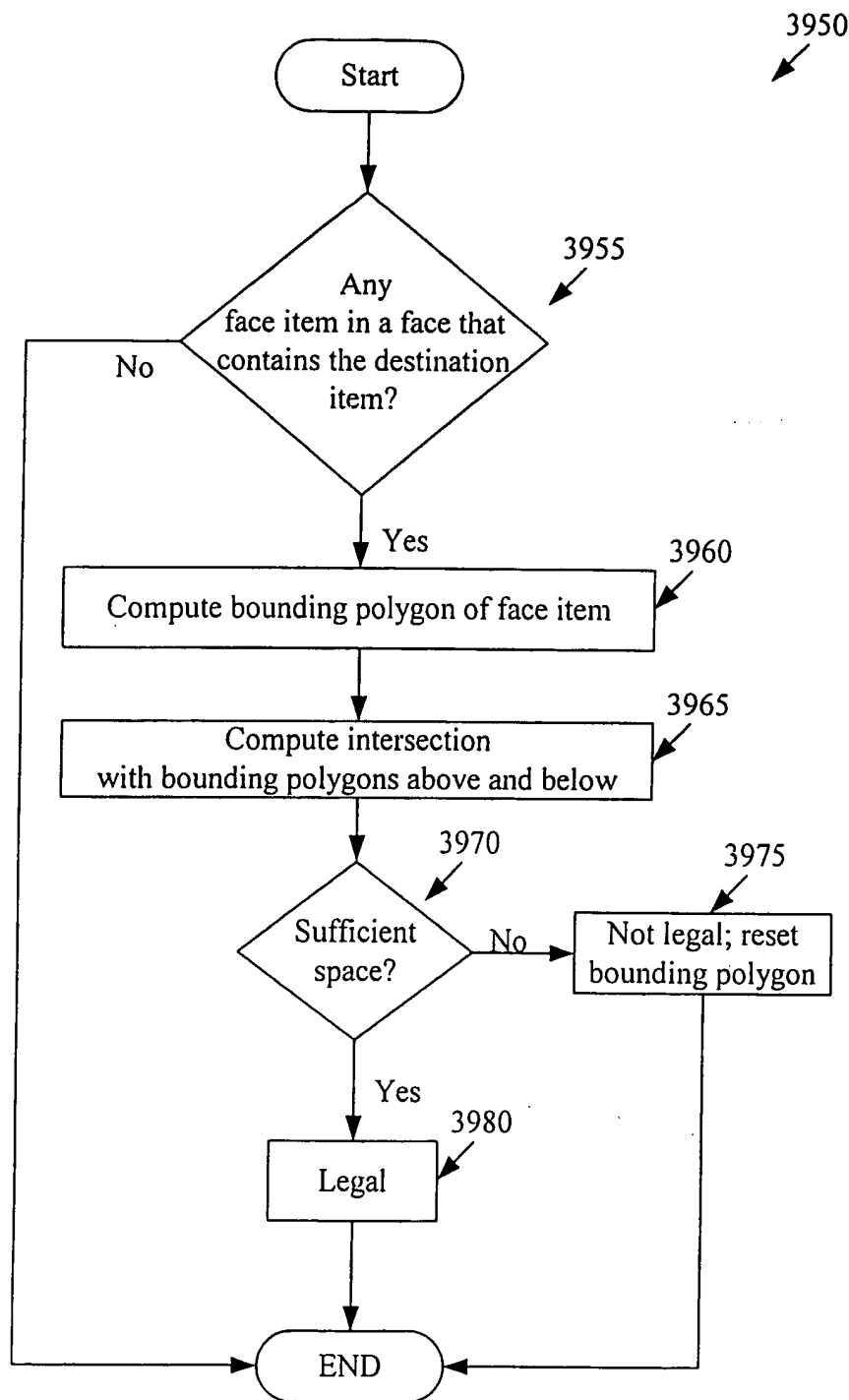
Figure 38B

To: Node		Face Item	Edge Item
From:	Node	<ul style="list-style-type: none"> <li>Planarity</li> <li>Vias</li> </ul>	<ul style="list-style-type: none"> <li>Planarity</li> <li>Vias</li> <li>Edge</li> <li>Capacity</li> </ul>
	Face Item	<ul style="list-style-type: none"> <li>Vias</li> </ul>	<ul style="list-style-type: none"> <li>Vias</li> <li>Edge</li> <li>Capacity</li> </ul>
	Edge Item	<ul style="list-style-type: none"> <li>Planarity</li> <li>Vias</li> </ul>	<ul style="list-style-type: none"> <li>Planarity</li> <li>Vias</li> <li>Edge</li> <li>Capacity</li> </ul>

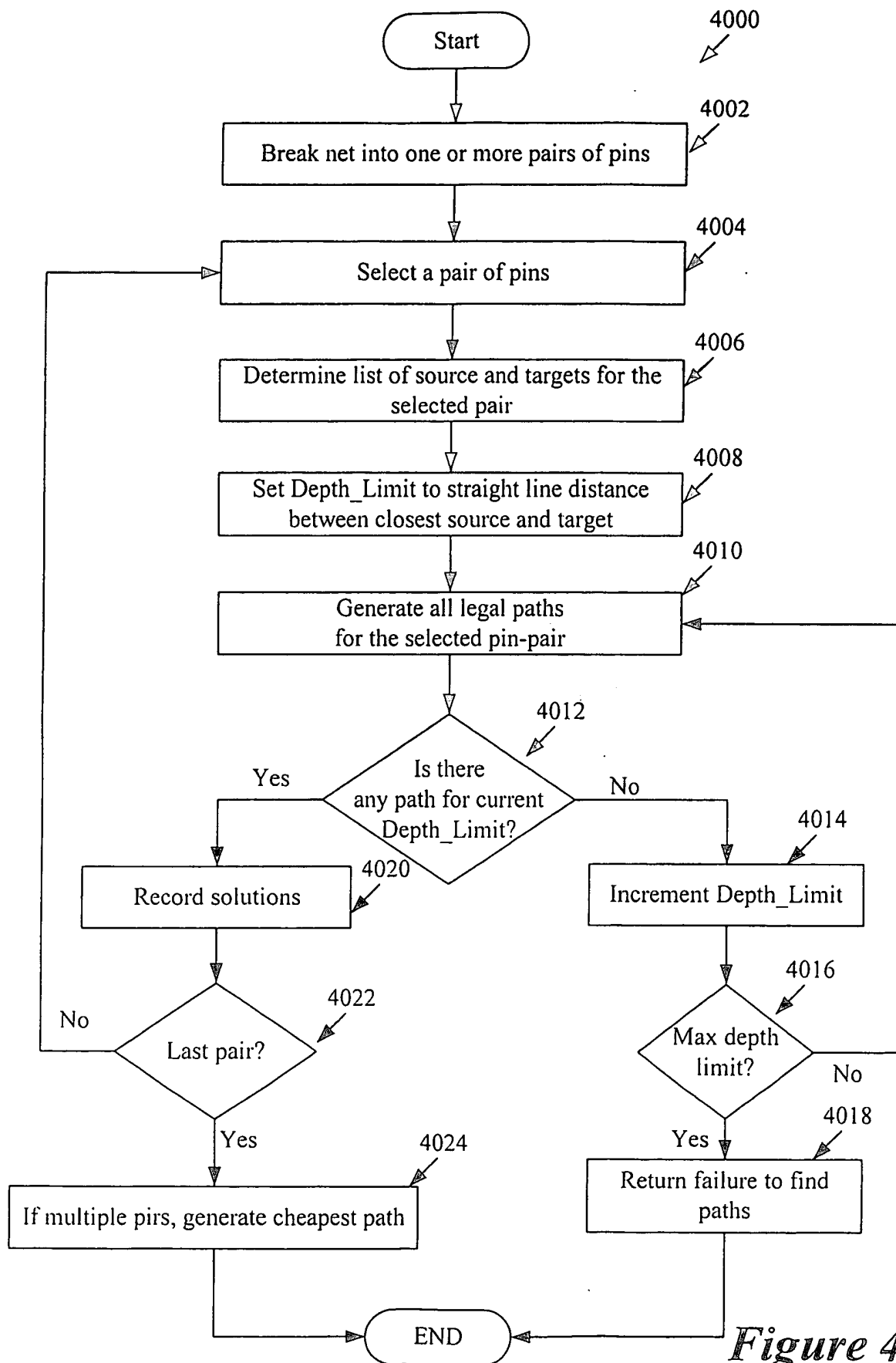
Figure 37



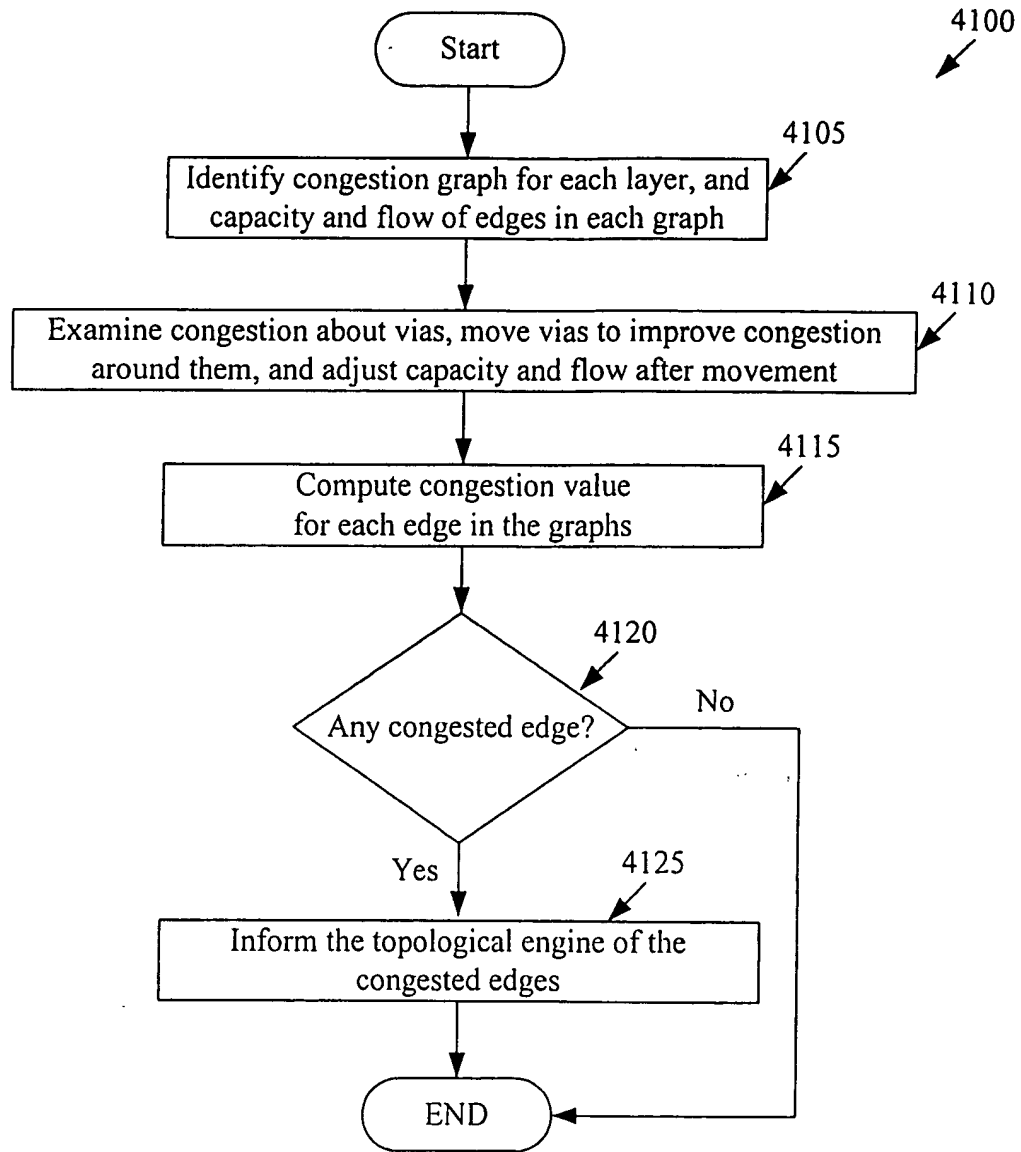
**Figure 39A**



*Figure 39B*



*Figure 40*



*Figure 41*

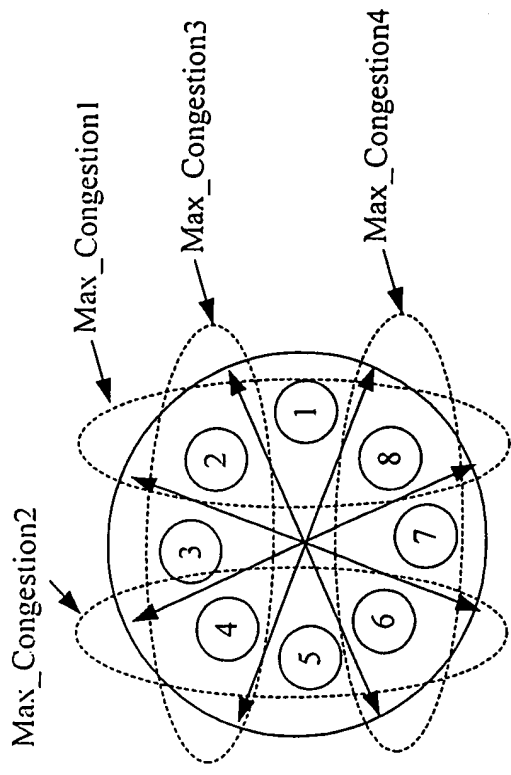


Figure 44

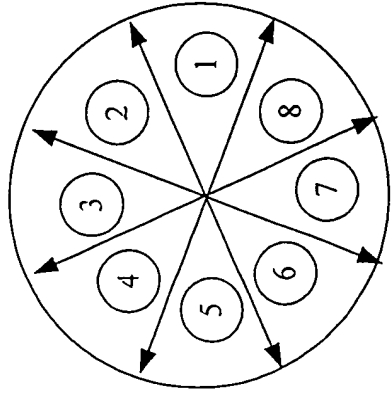


Figure 42

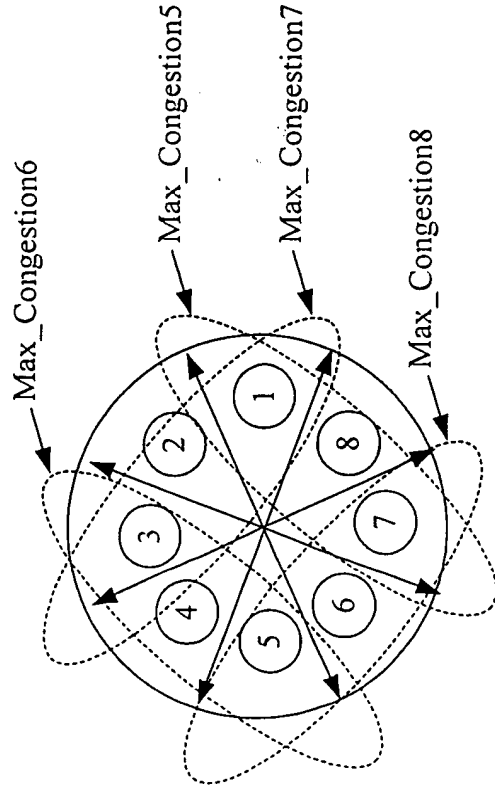


Figure 45

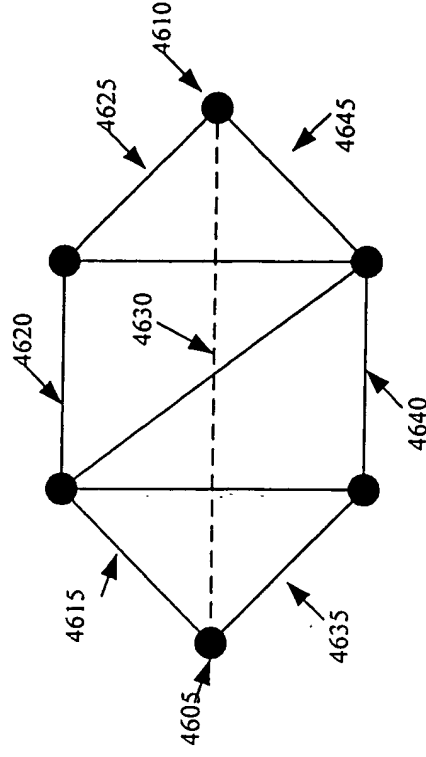


Figure 46

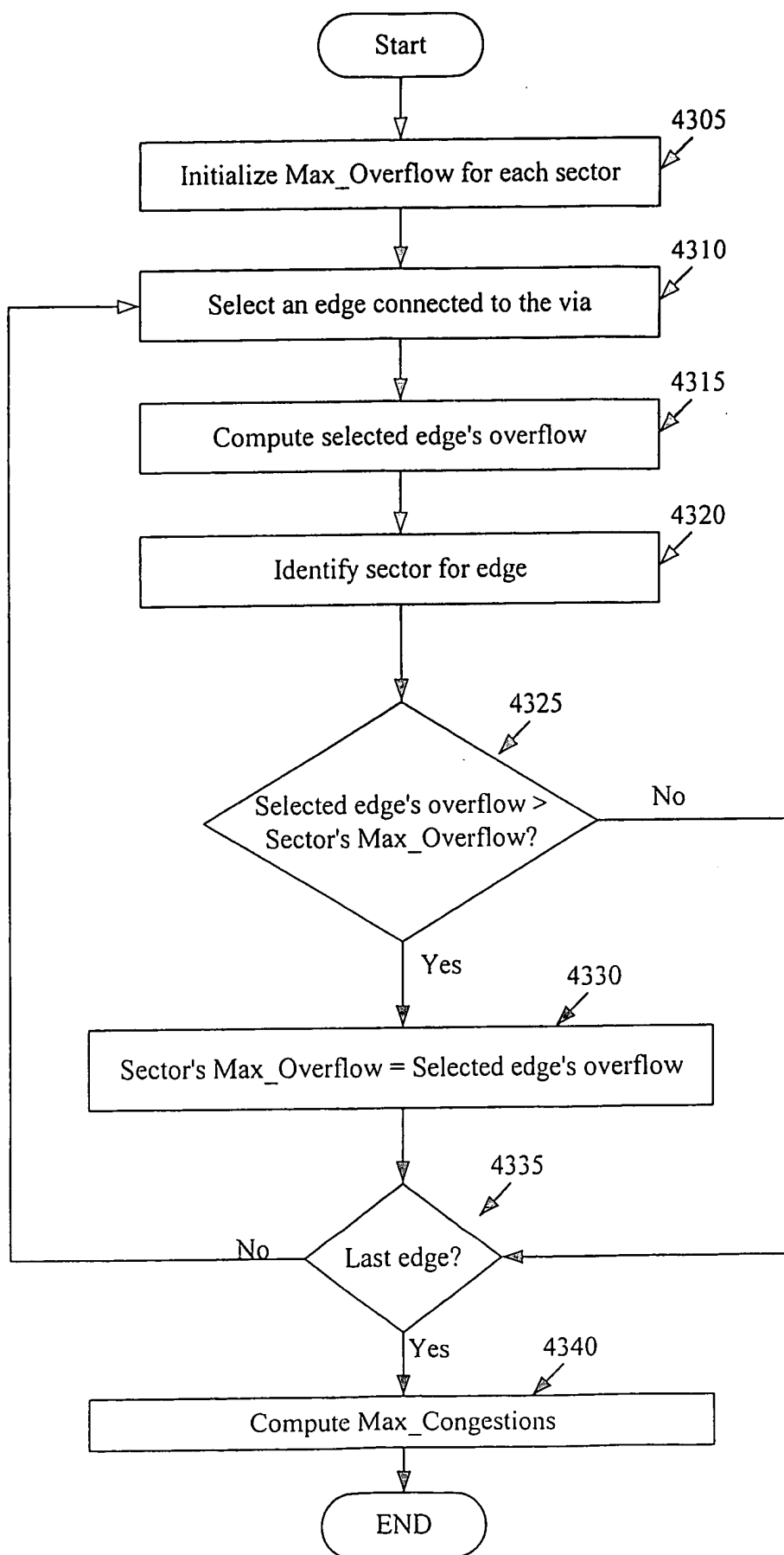
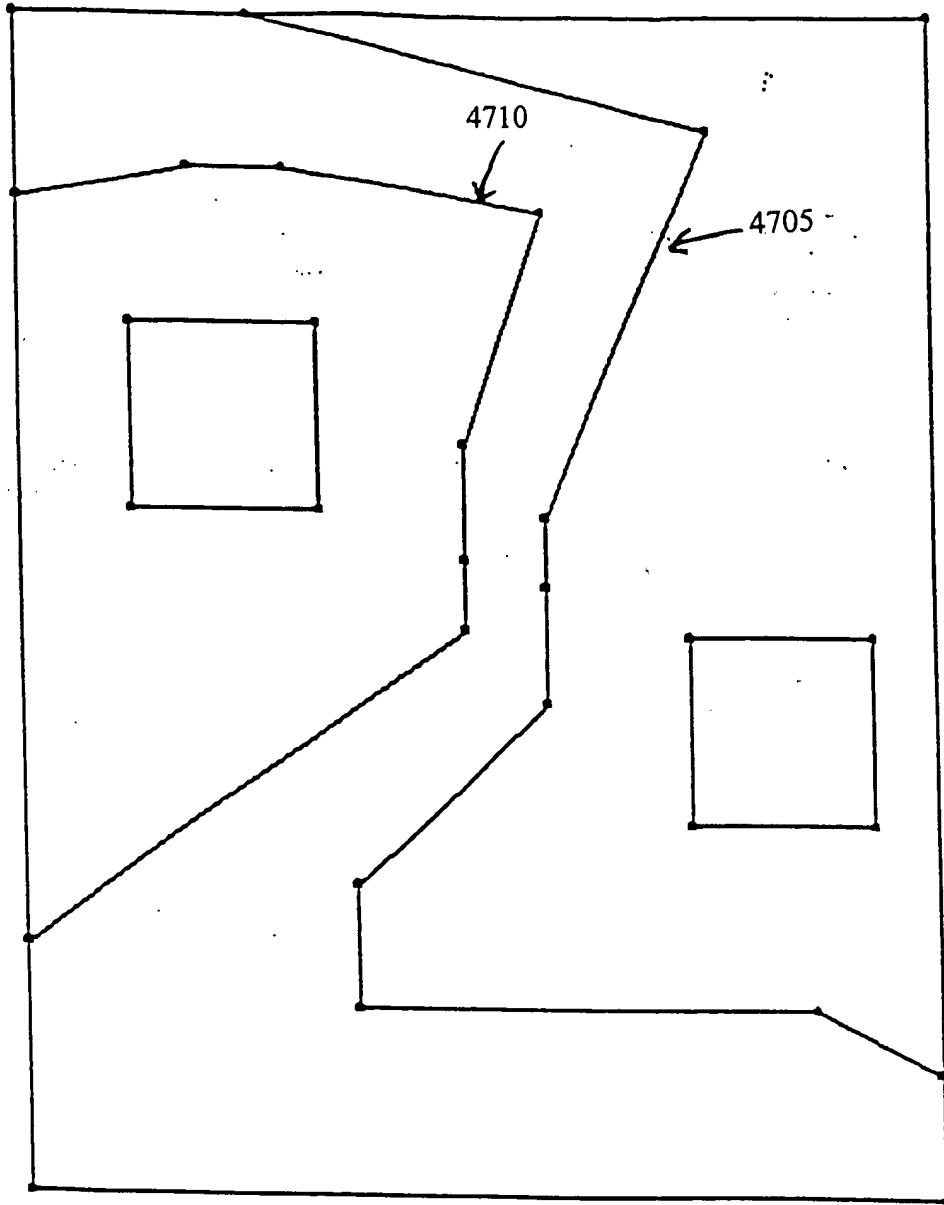


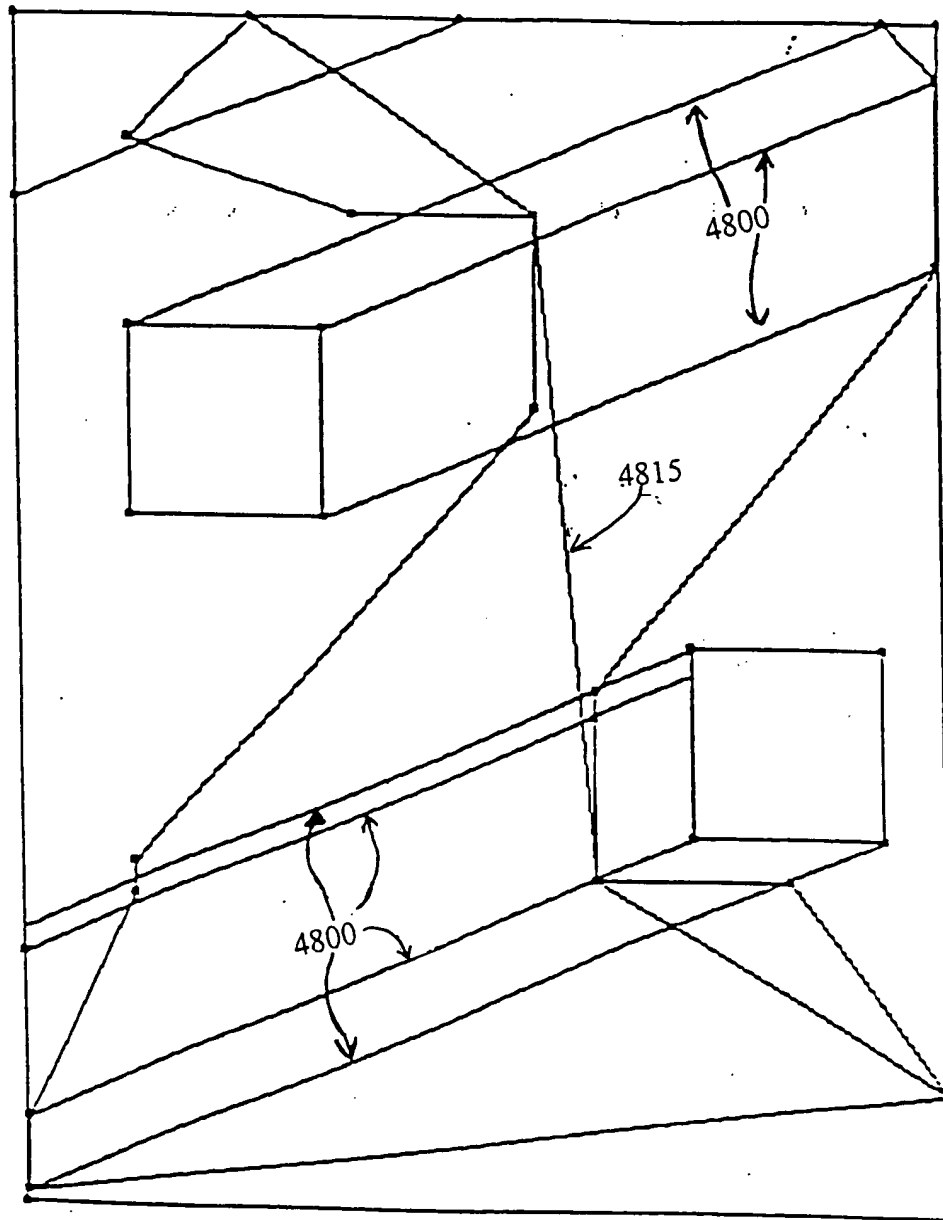
Figure 43



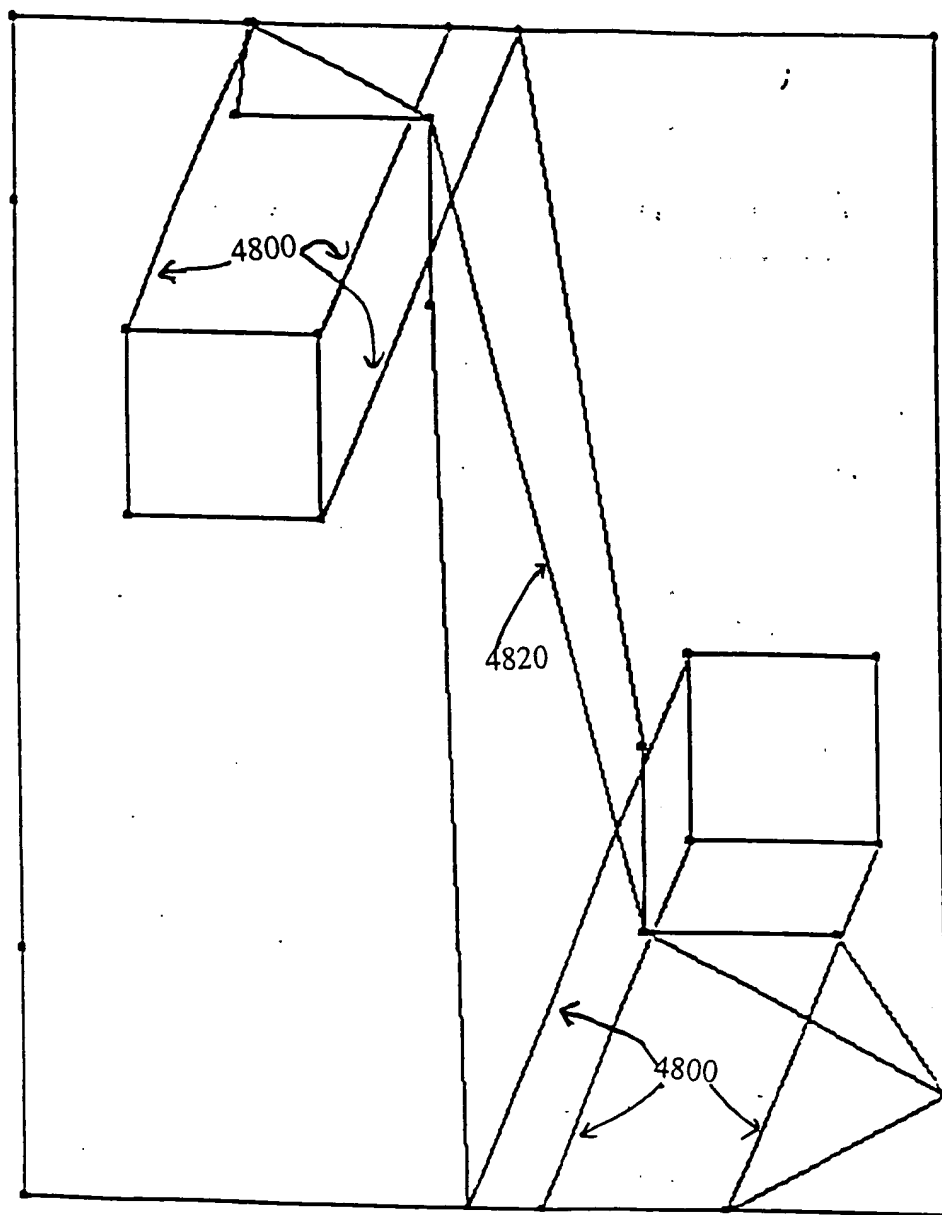
2010-05-08



**FIGURE 47**

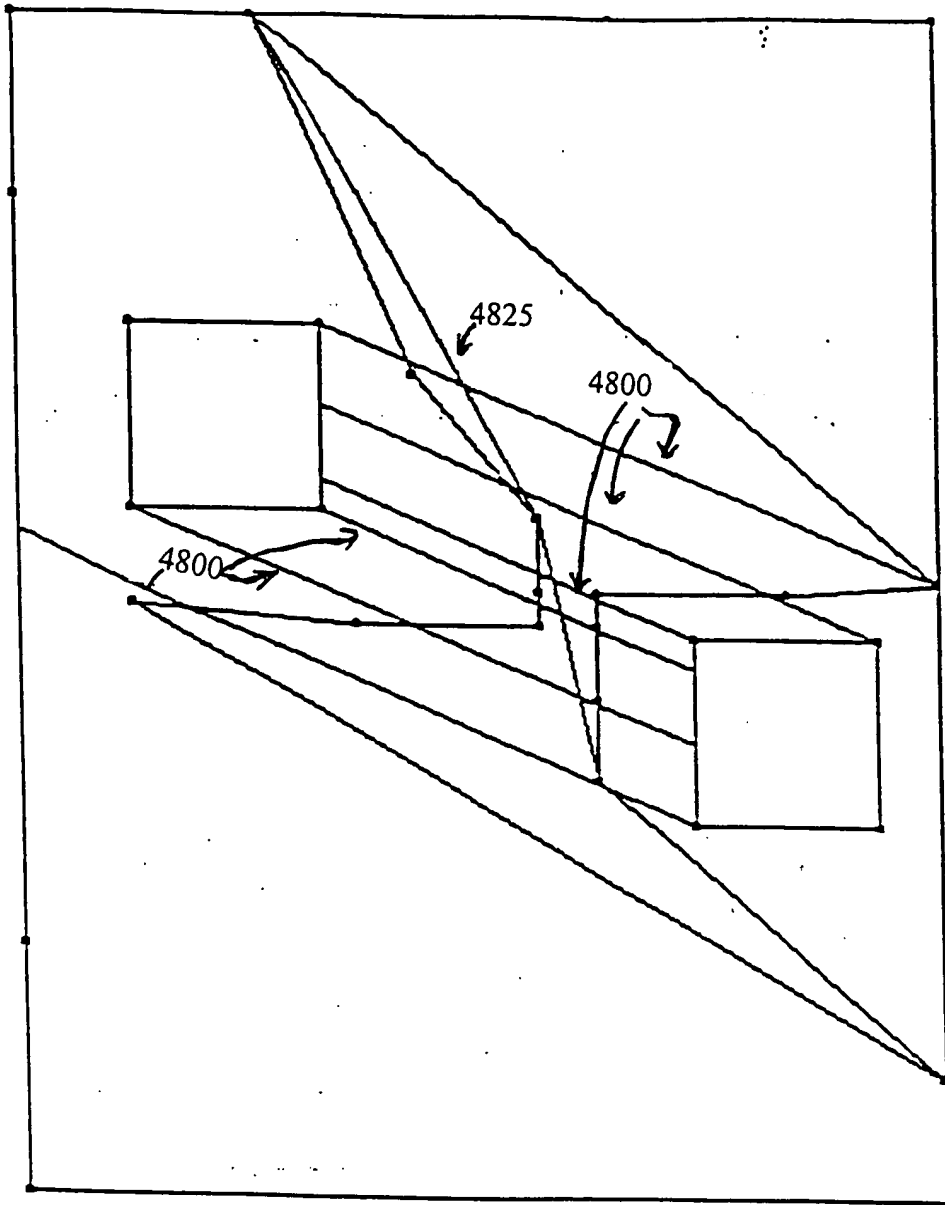


**FIGURE 48A**

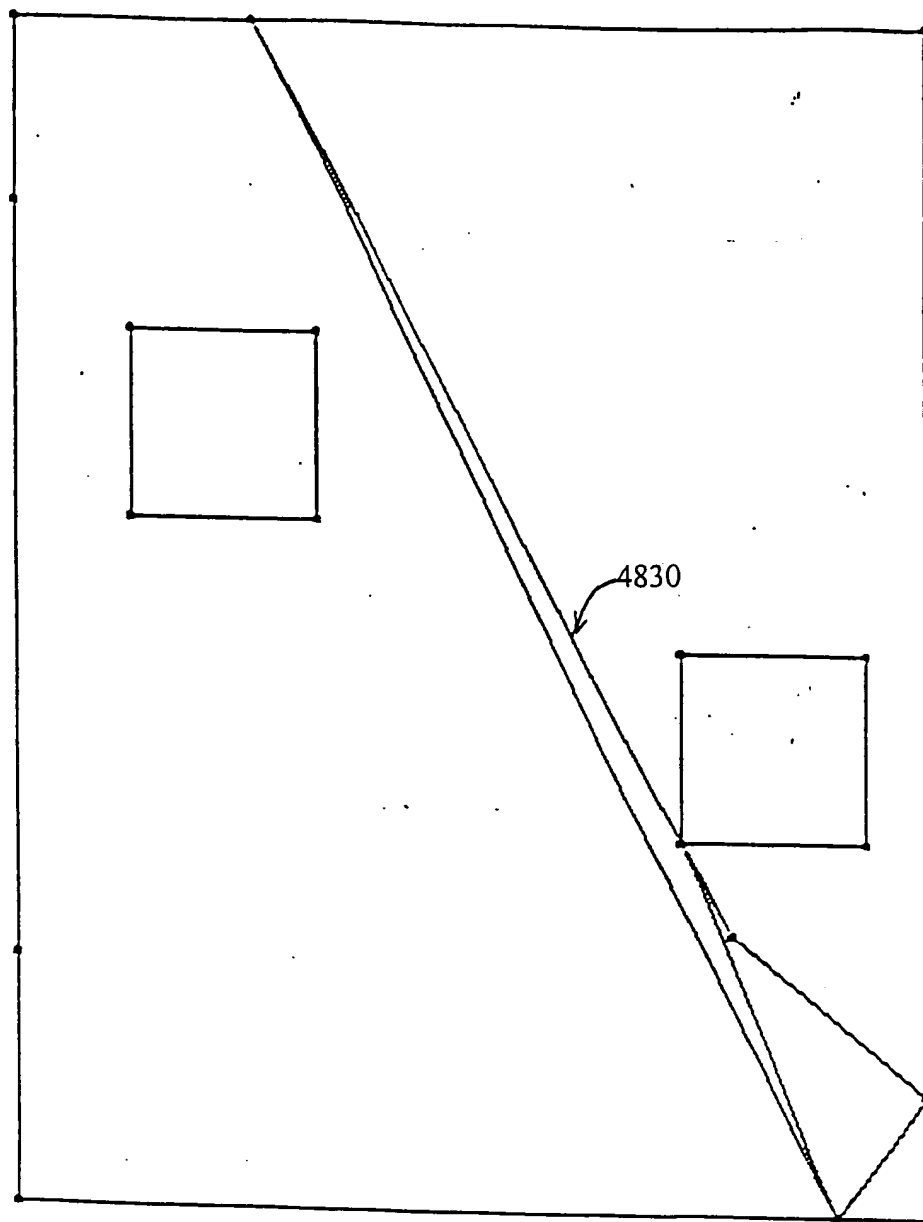


**FIGURE 48B**

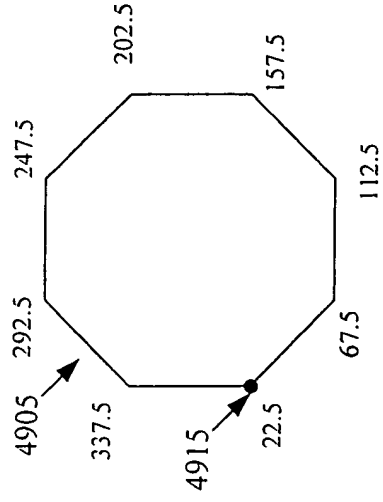
2010-09-09



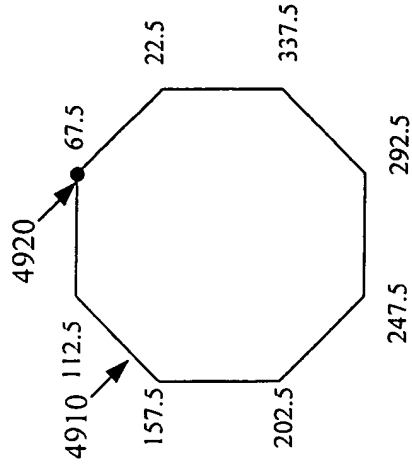
**FIGURE 48C**



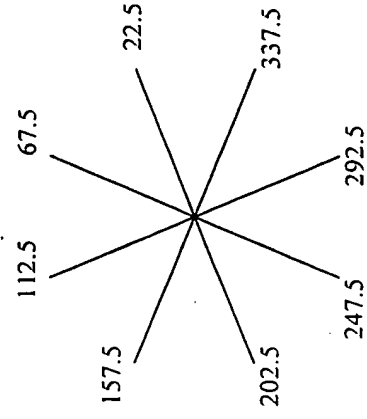
**FIGURE 48D**



*Figure 49A*

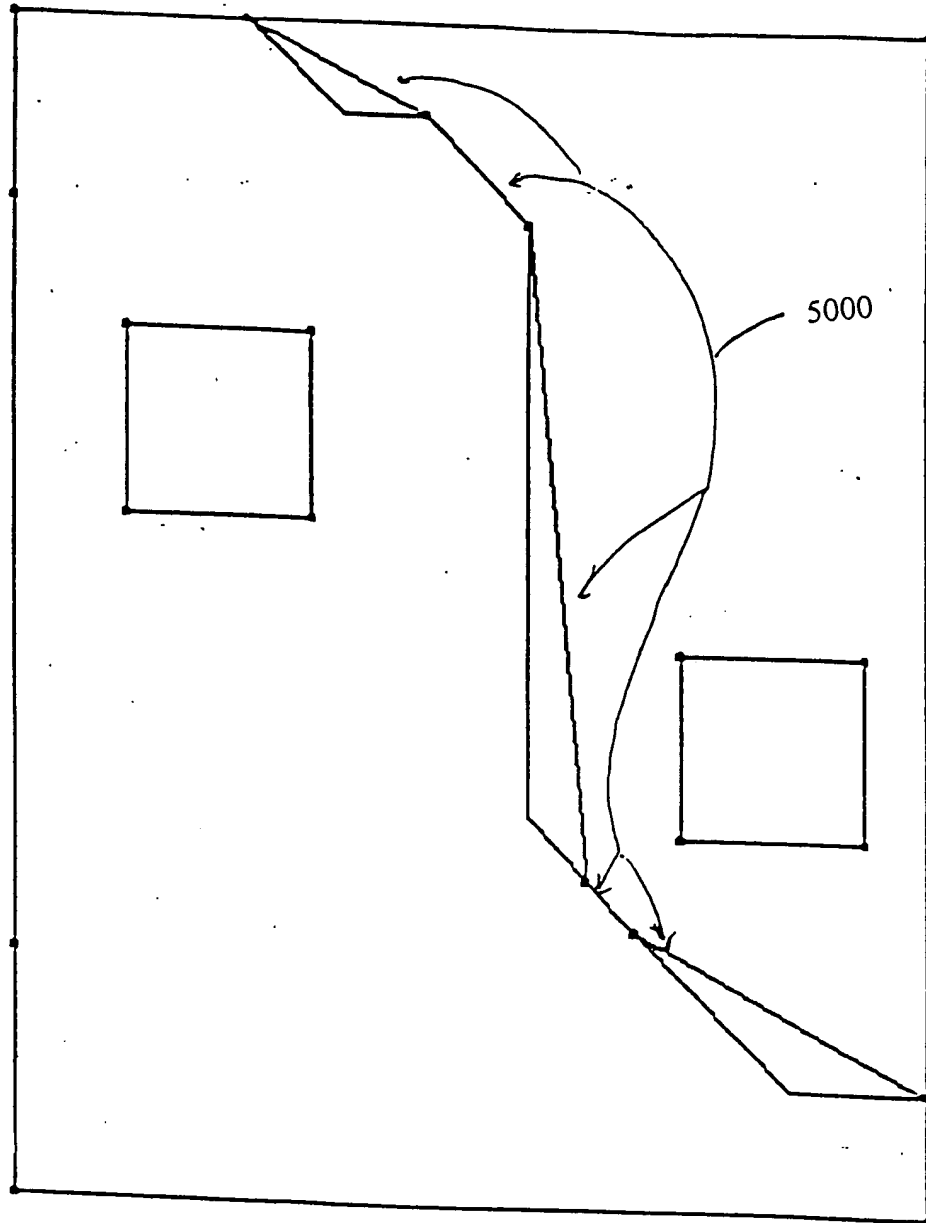


*Figure 49B*

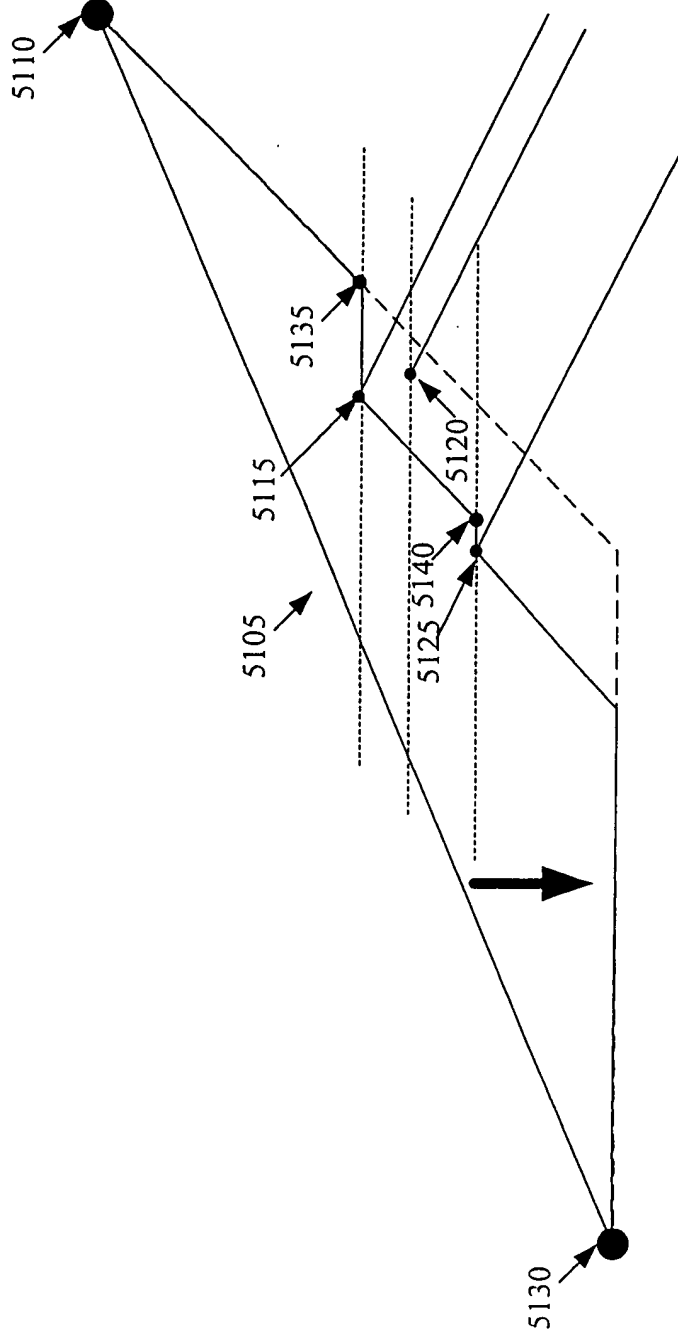


*Figure 49C*

2010-02-02 10:05:40



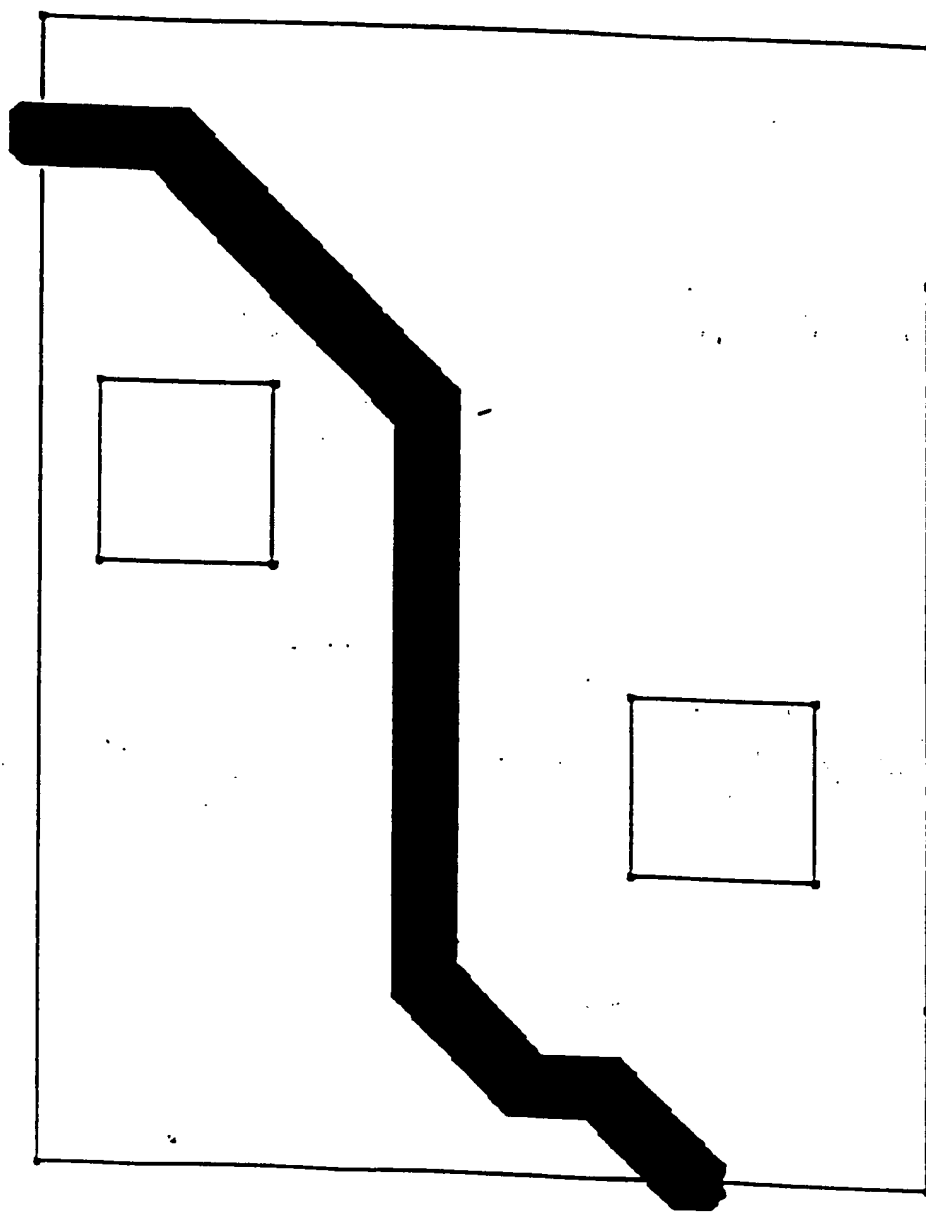
**FIGURE 50**

[illegible]

**Figure 51**

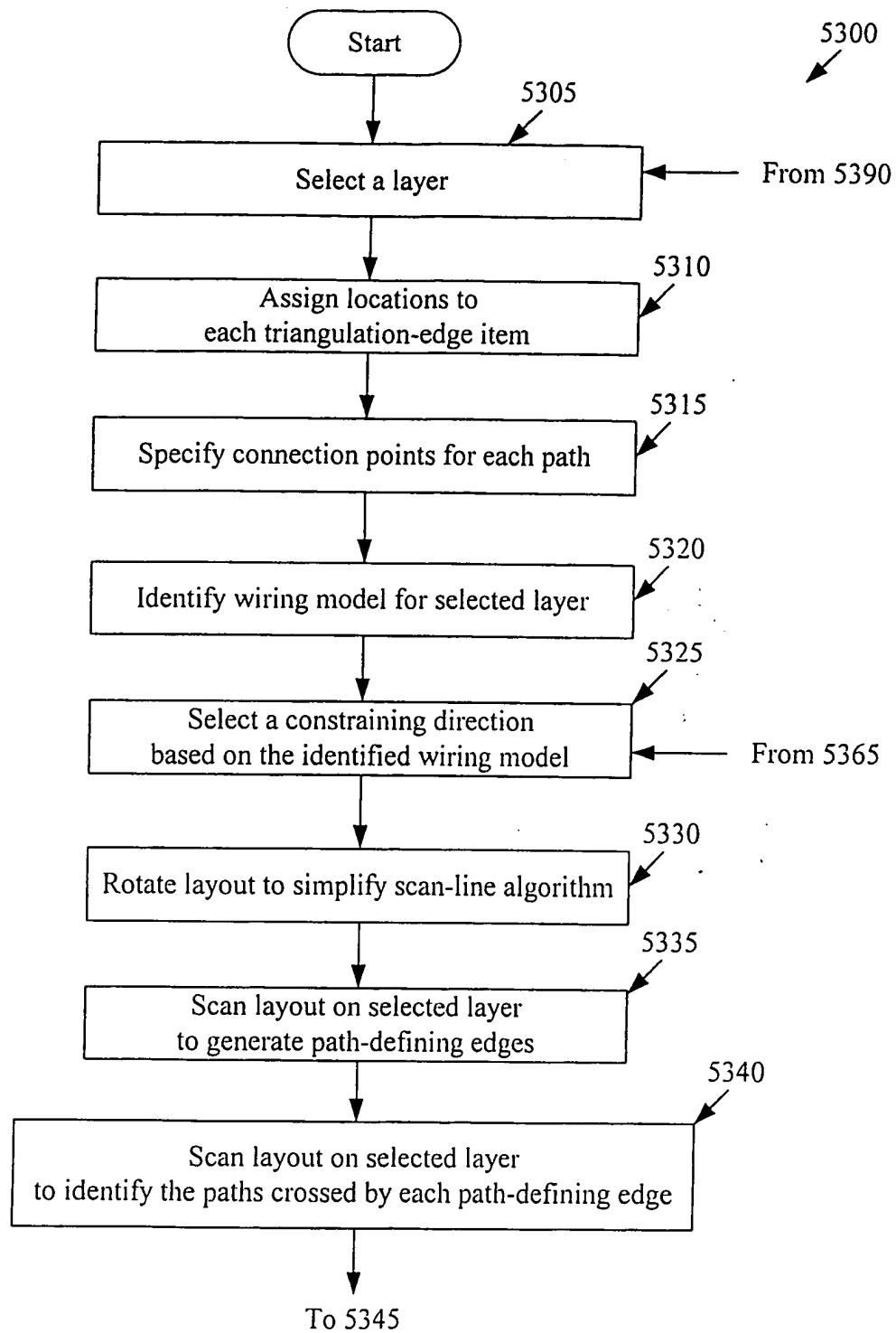


2010-09-03



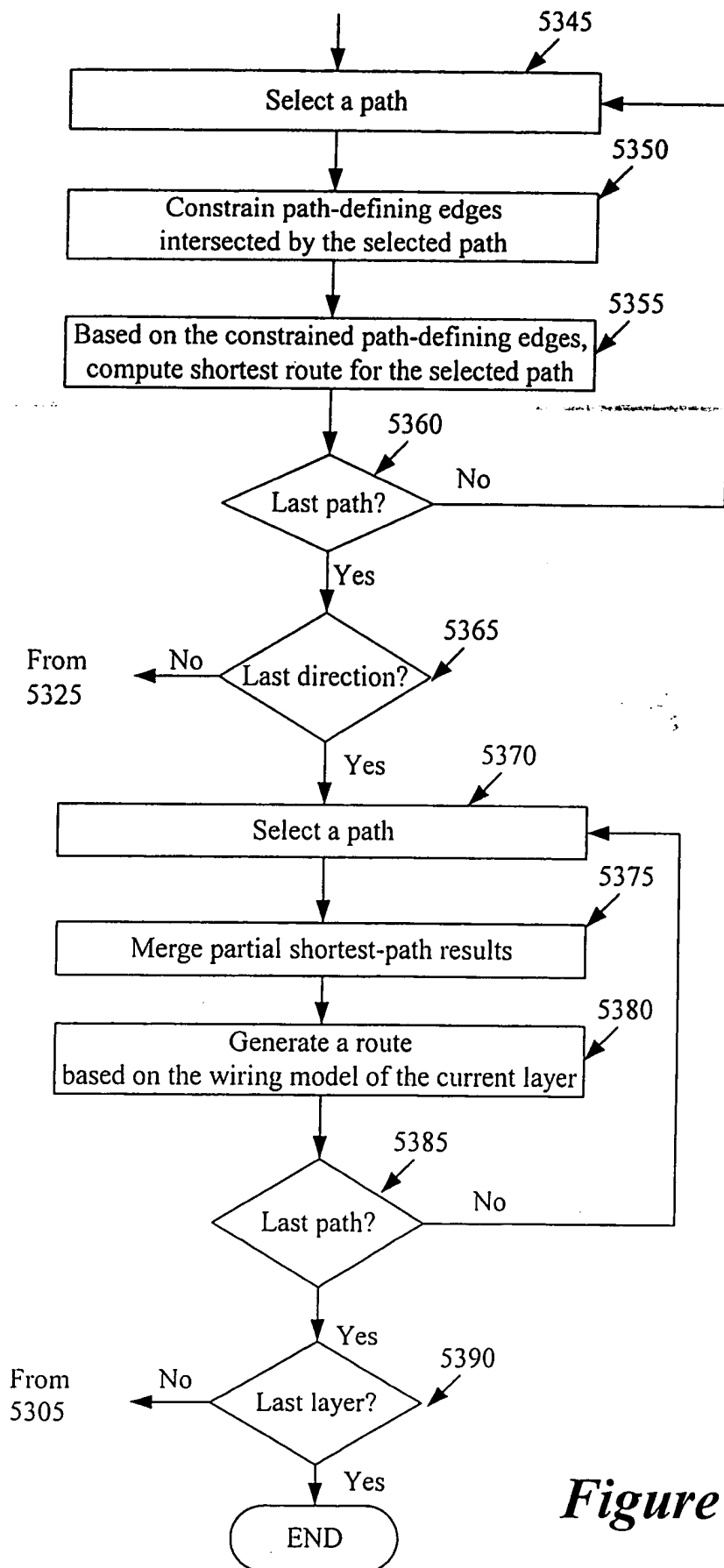
*FIGURE 52*

2016-09-09



**Figure 53**

**Figure 53:** *Figure 53A*  
*Figure 53B*



**Figure 53B**

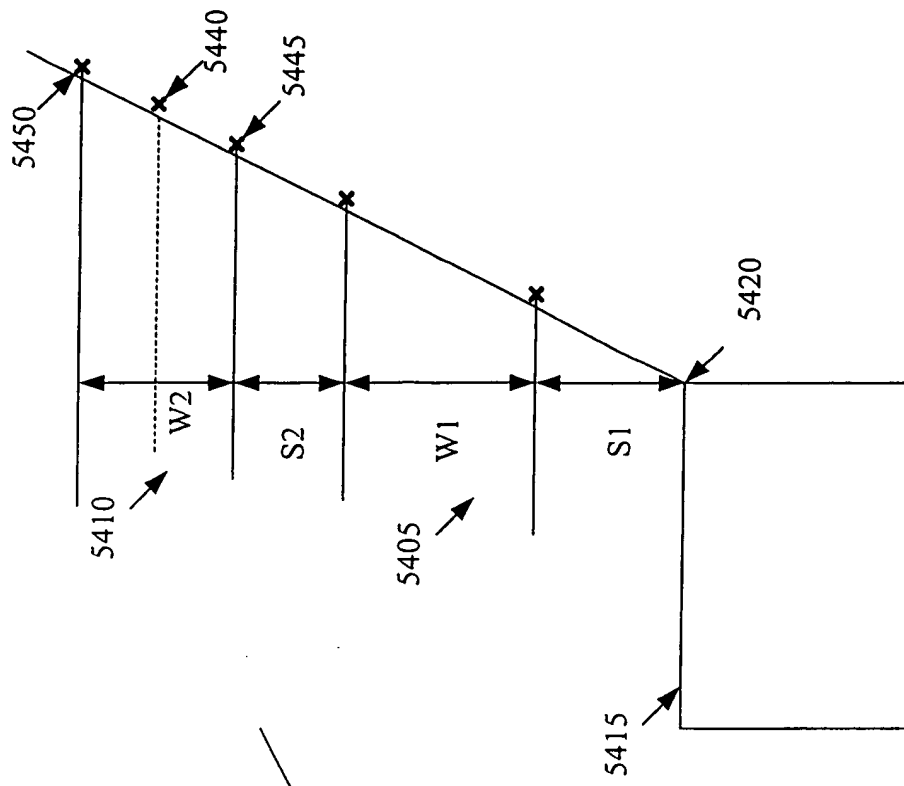


Figure 54

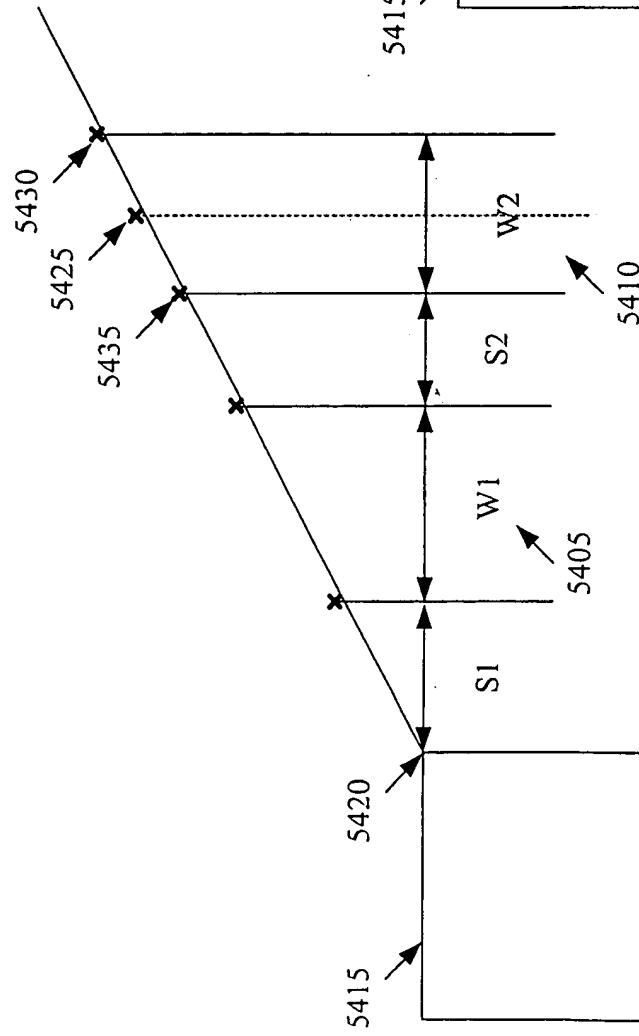
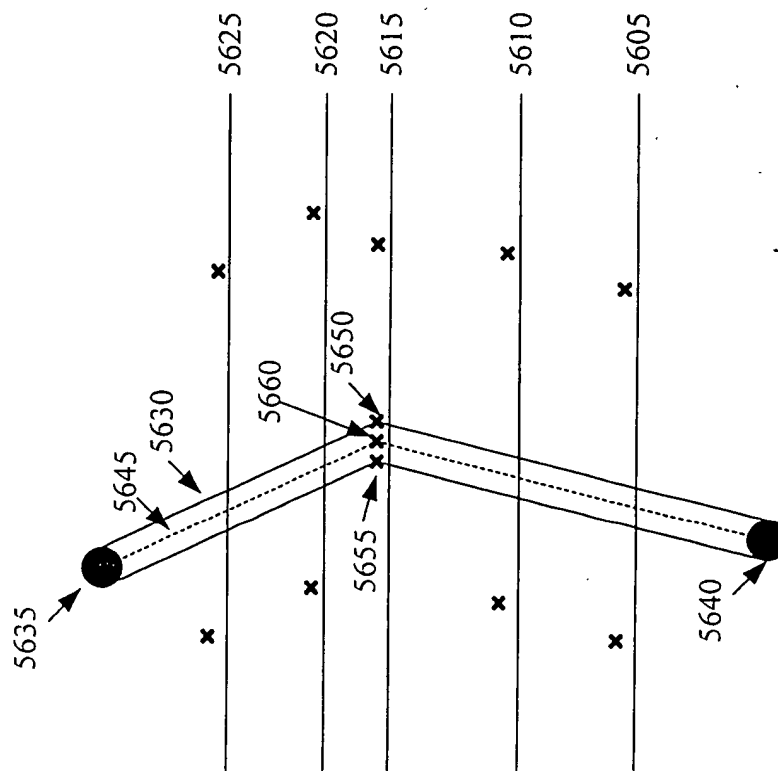
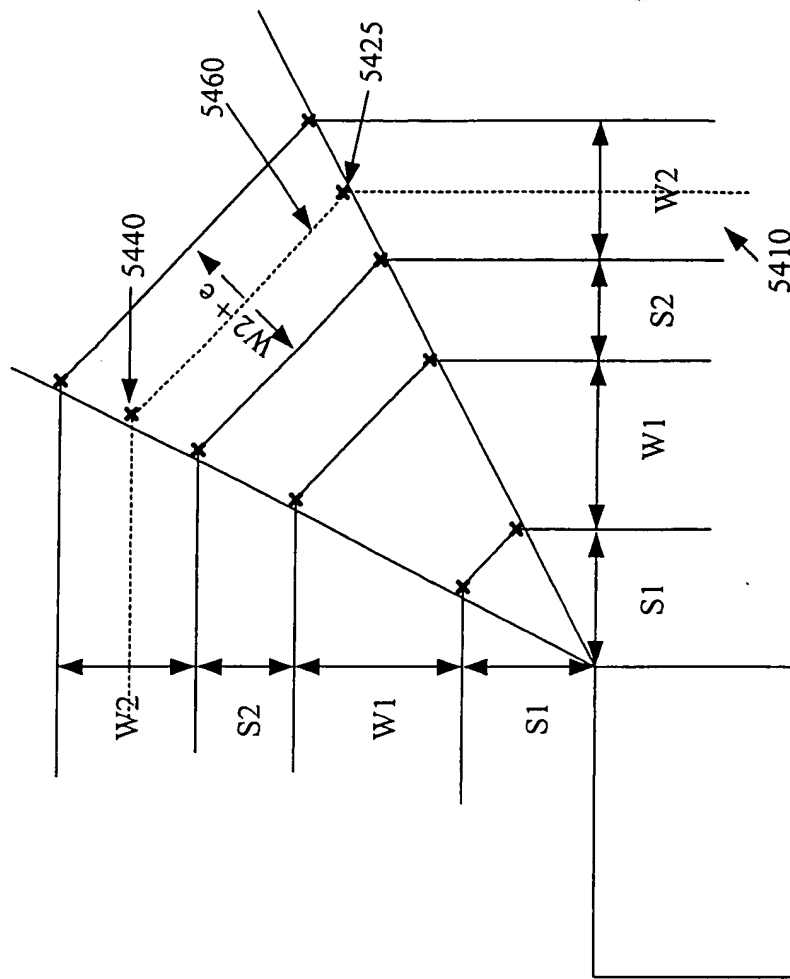


Figure 55

[illegible]

**Figure 56**



**Figure 57**

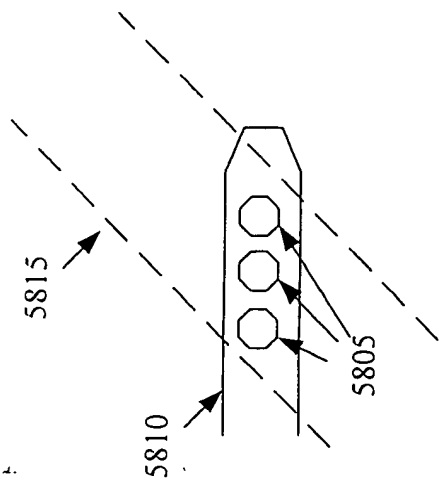


Figure 58

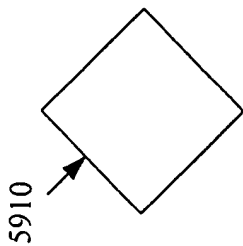
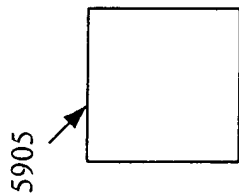


Figure 59

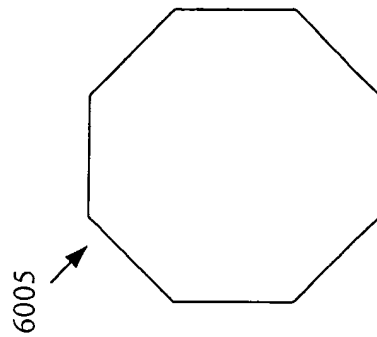


Figure 60

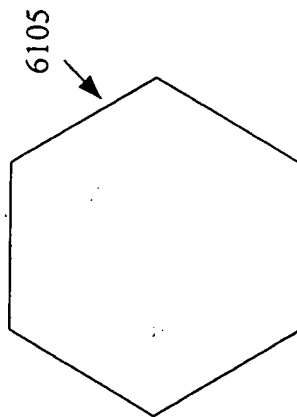


Figure 61

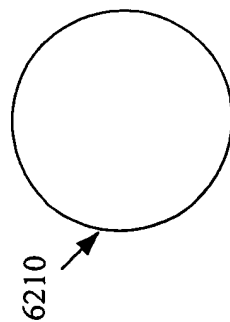


Figure 62

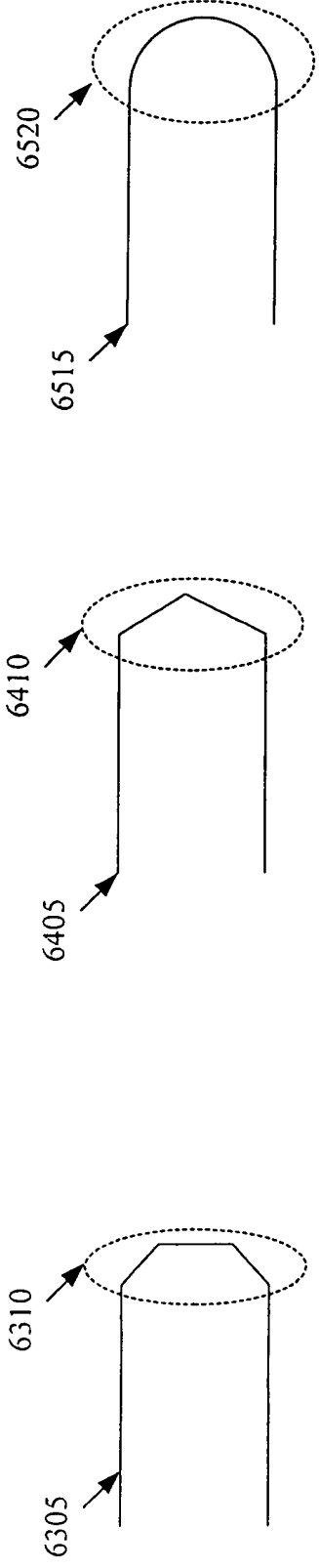


Figure 63

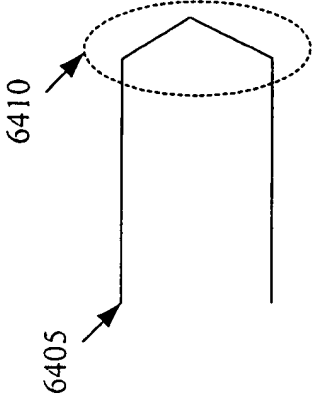


Figure 64

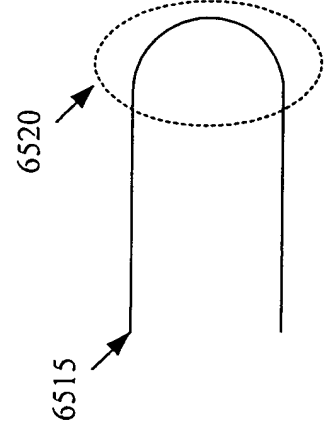


Figure 65

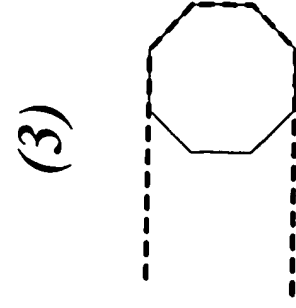
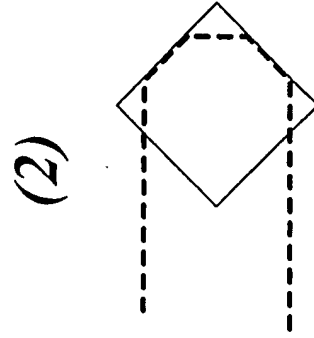
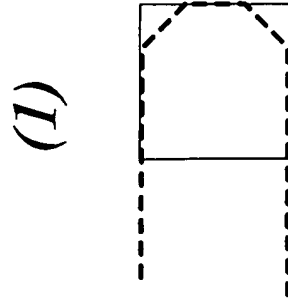


Figure 66



Figure 67

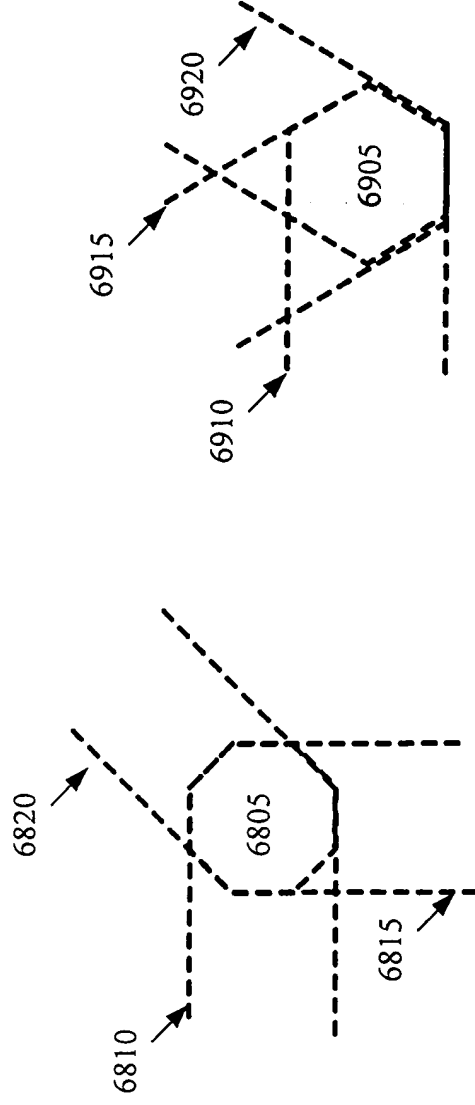


Figure 68

Figure 69



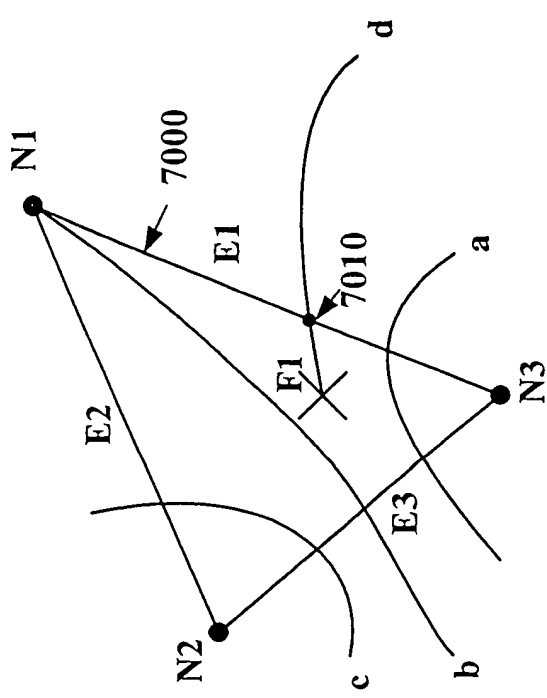


Figure 70

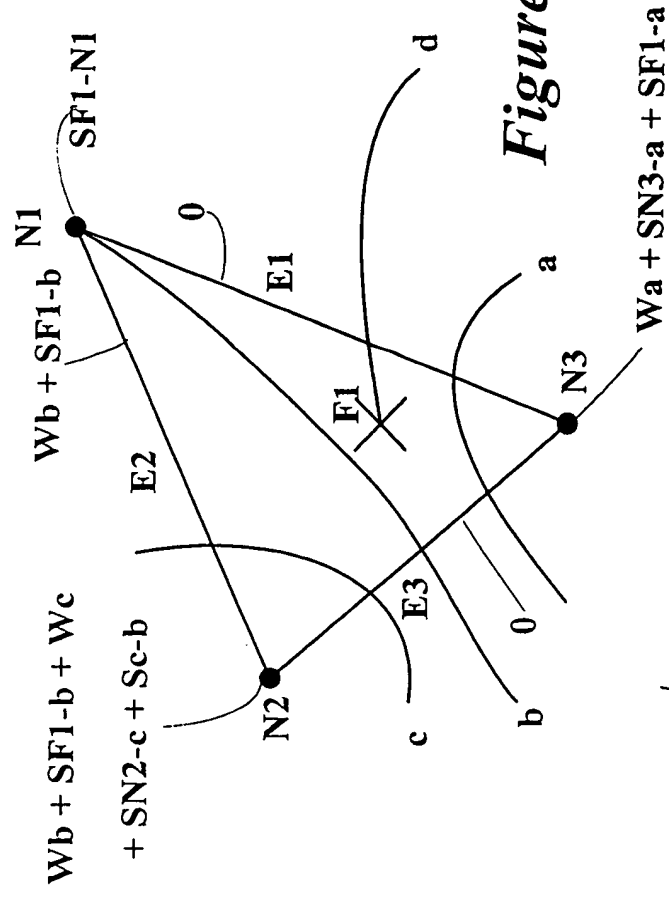


Figure 71

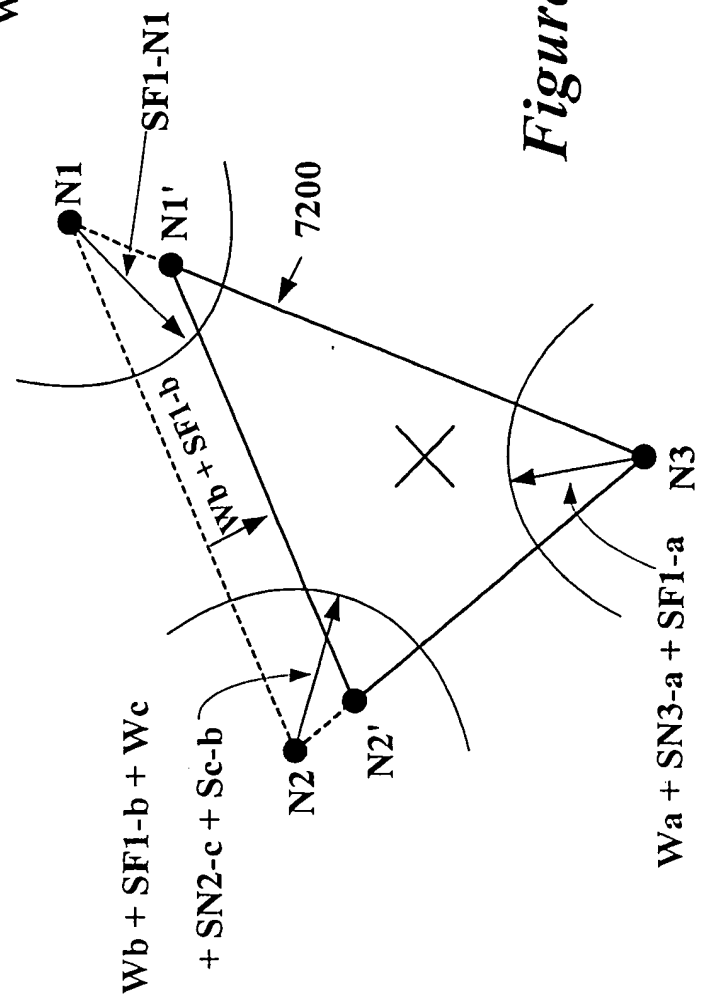
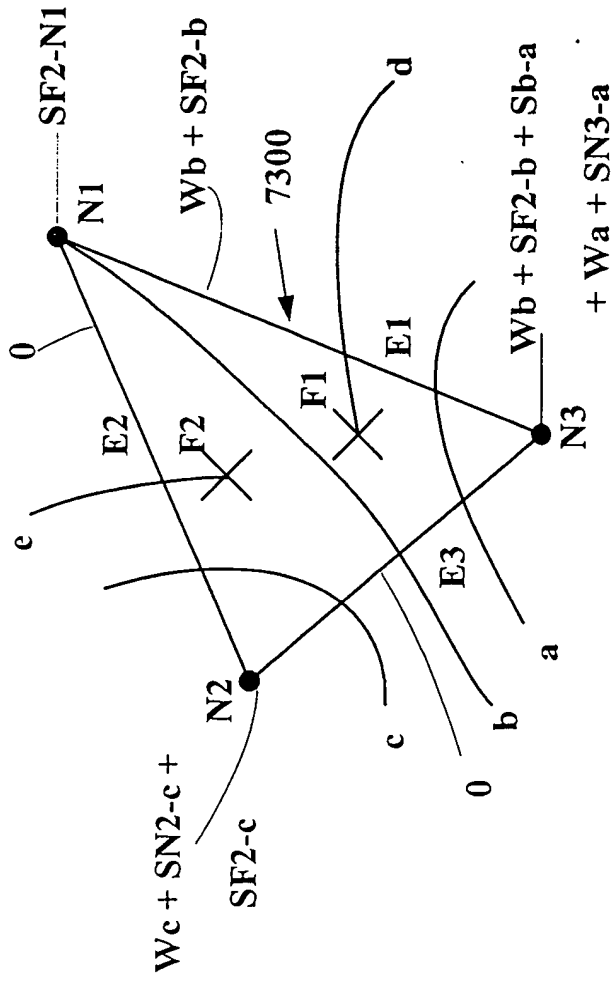
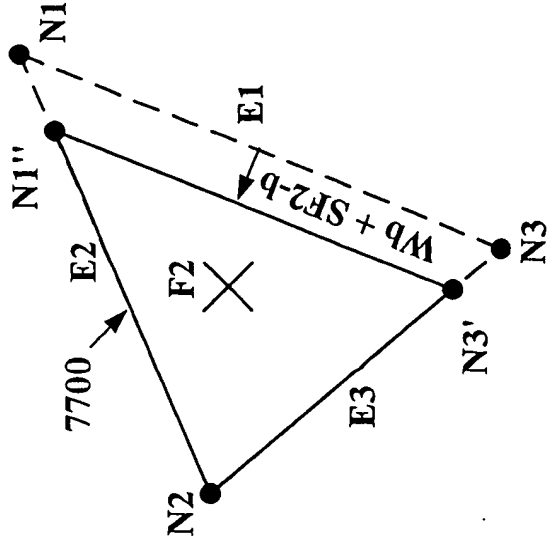


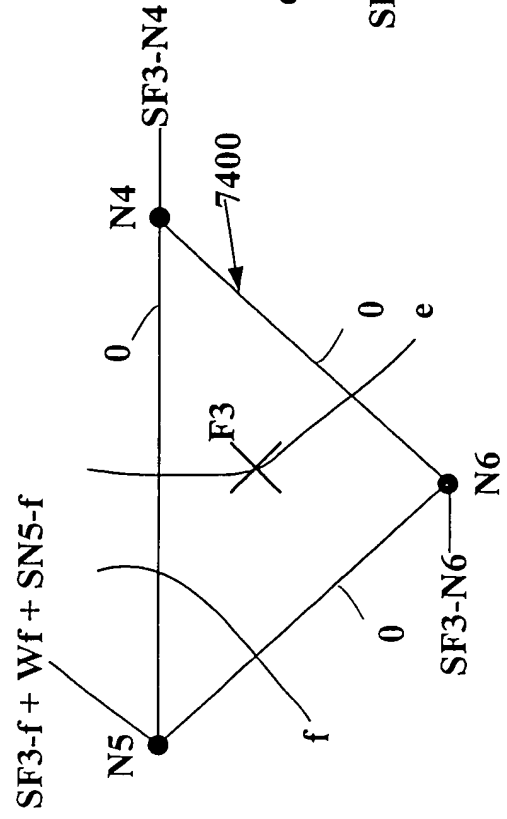
Figure 72

[illegible]

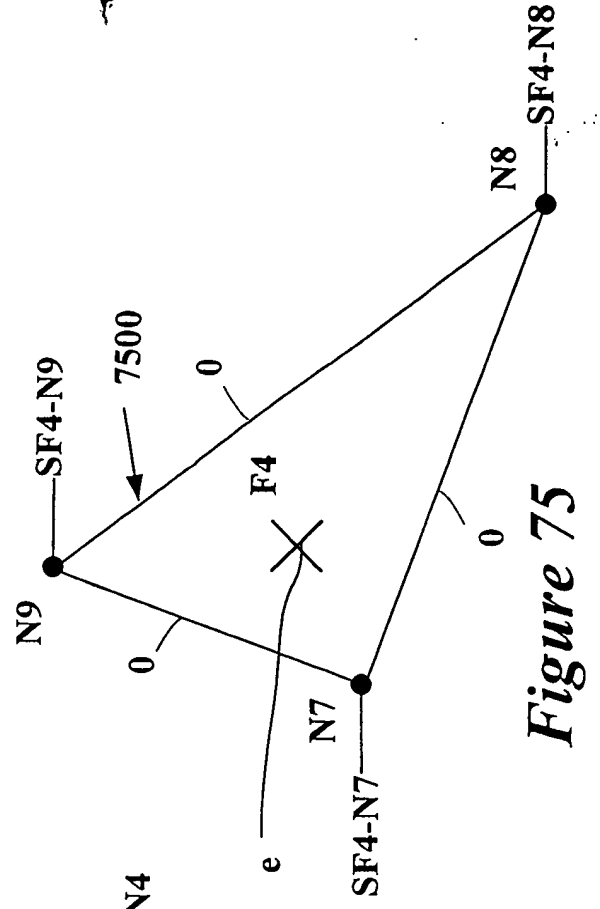
**Figure 73**



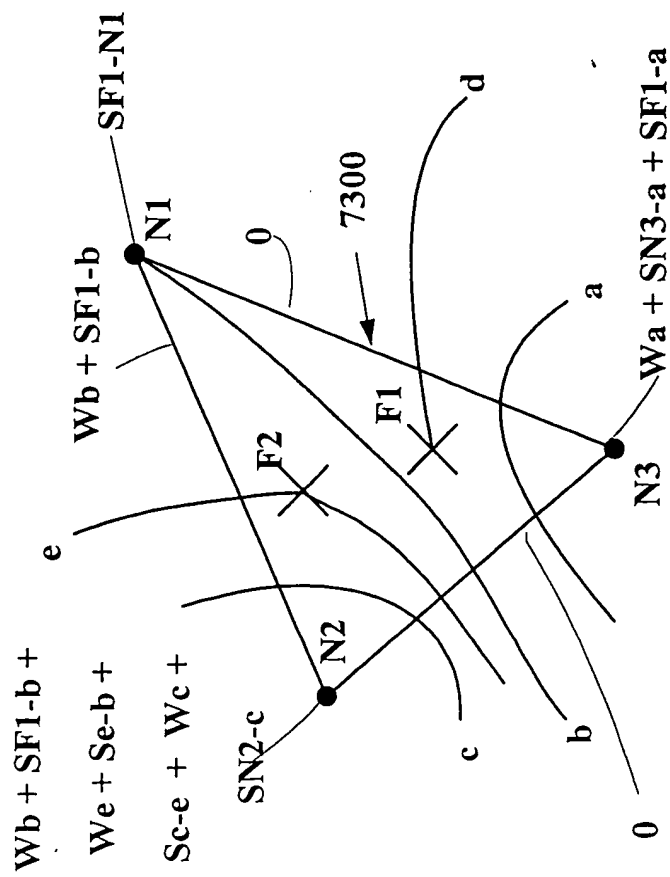
**Figure 77**



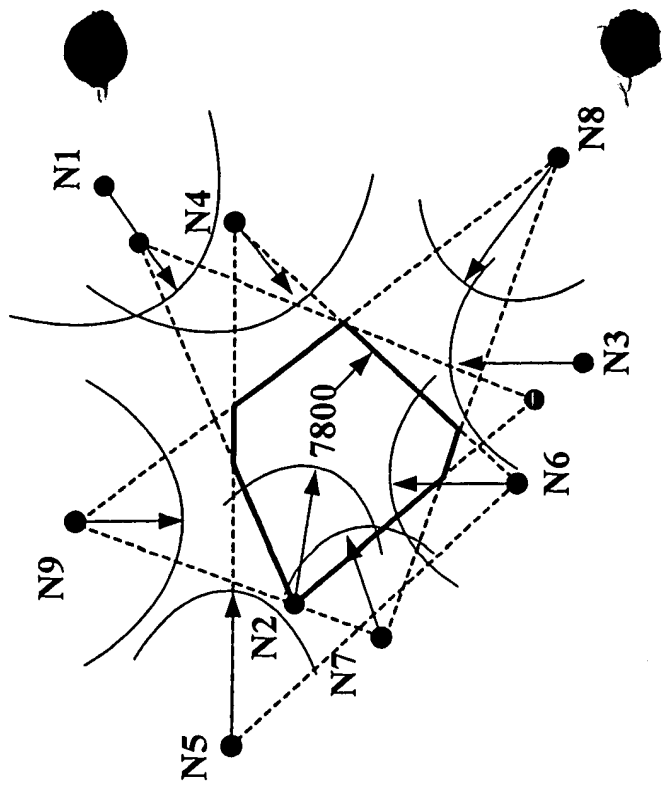
**Figure 74**



## Figure 75



**Figure 76**



**Figure 78**

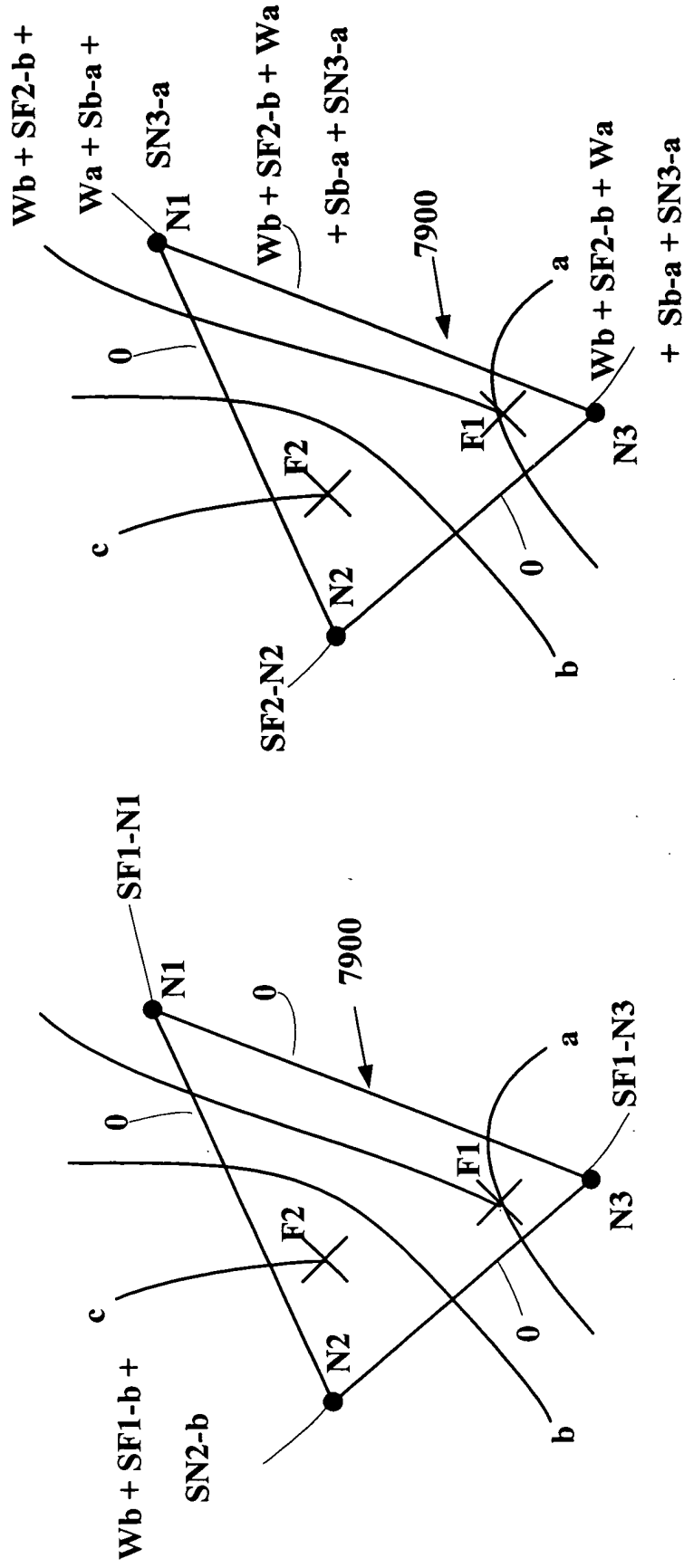


Figure 79

Figure 80

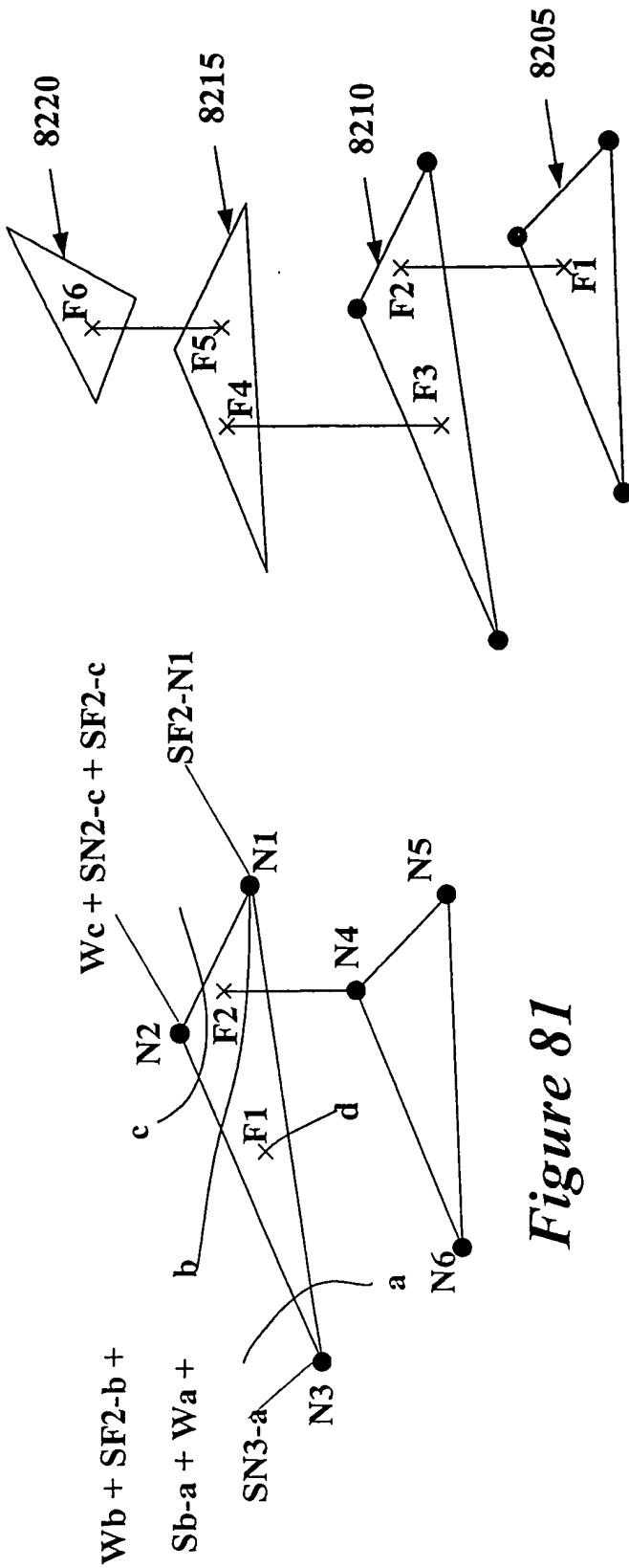


Figure 81

Figure 82

